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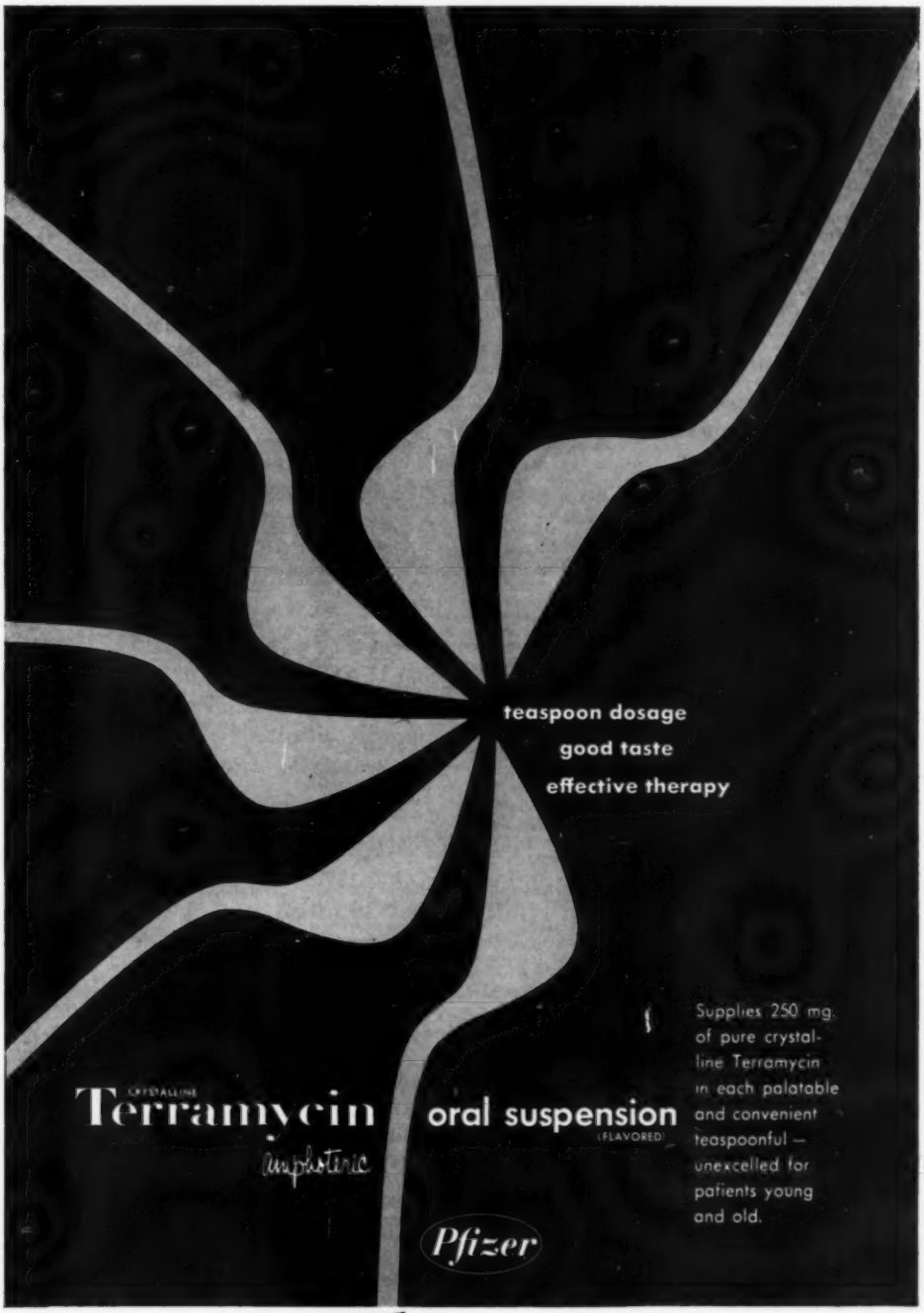

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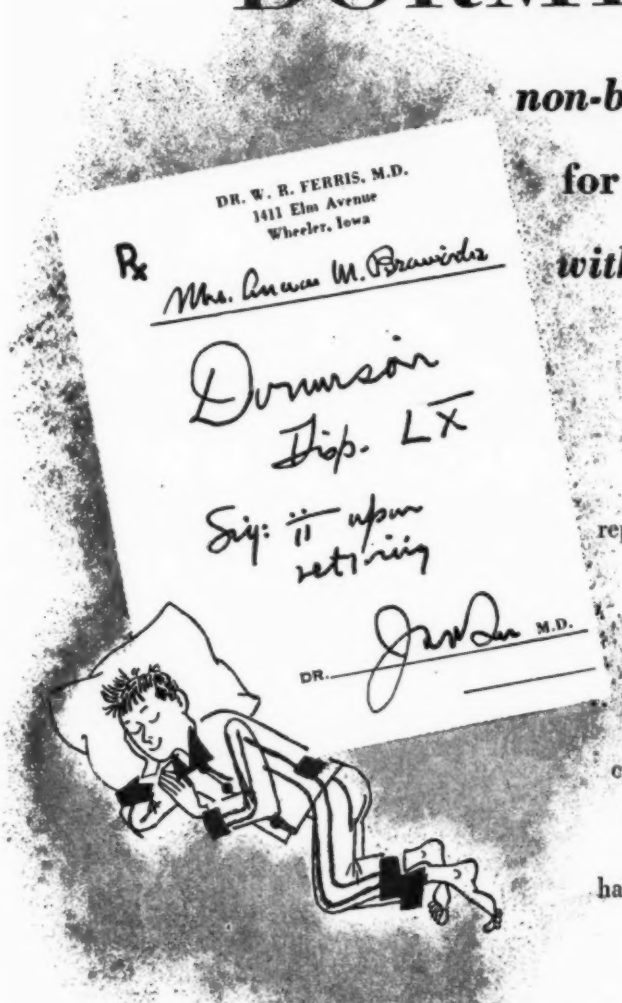

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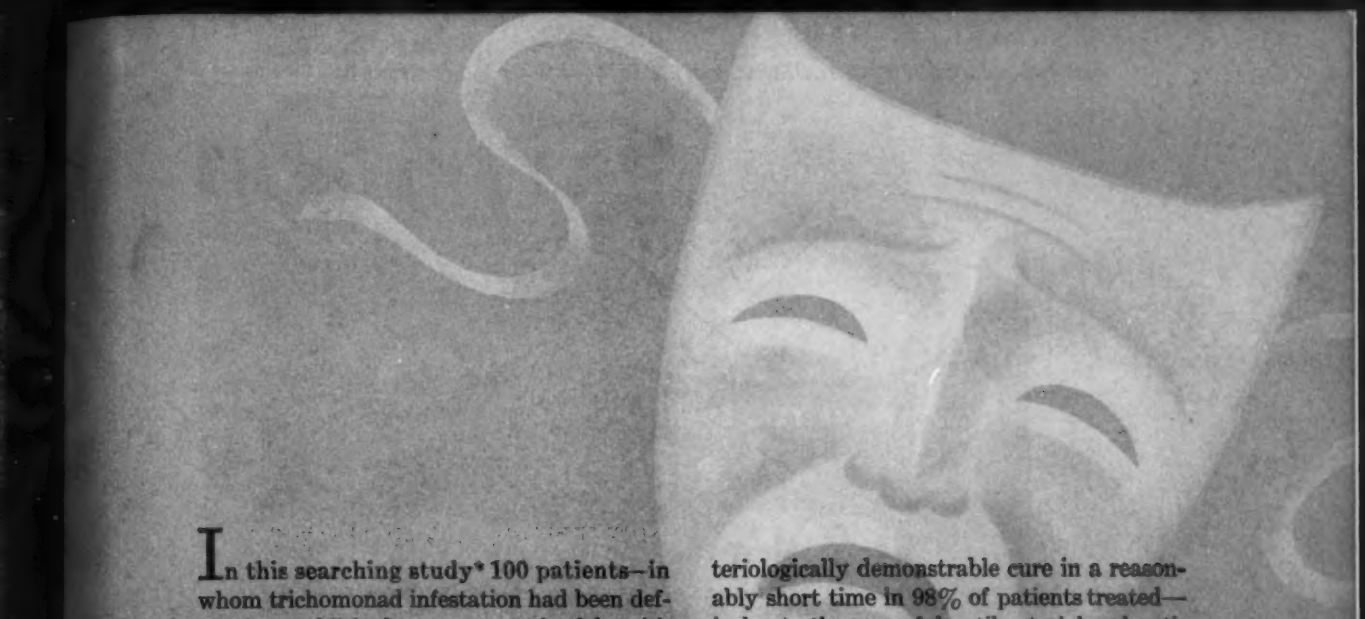

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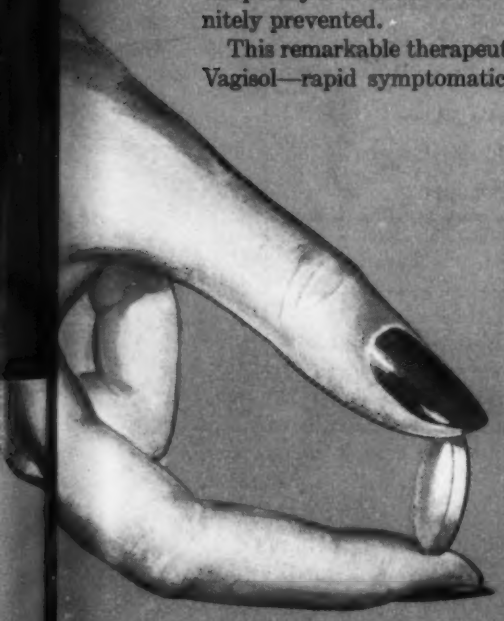

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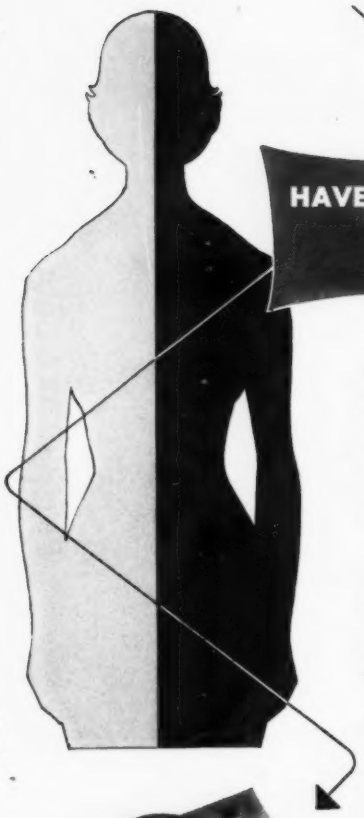

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1. New and Non-official Remedies, 1951, P 269.

2. Report to the Council, J.A.M.A., 148:50, (Jan. 5) 1952.

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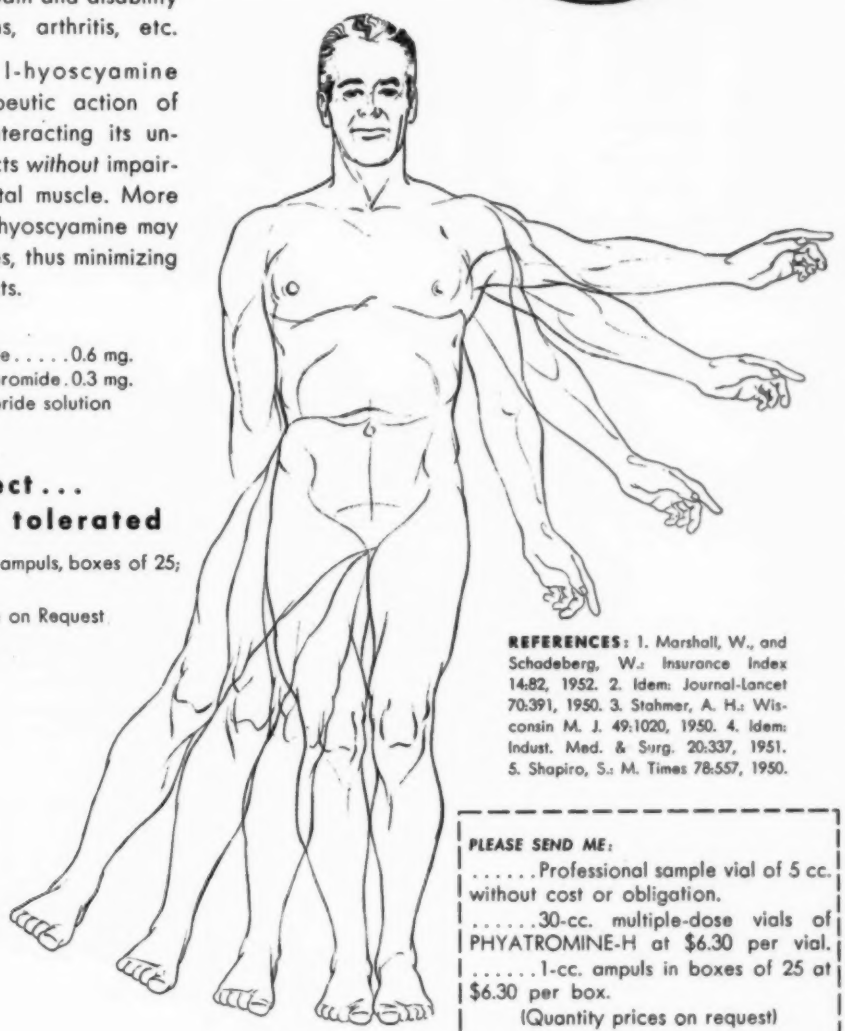

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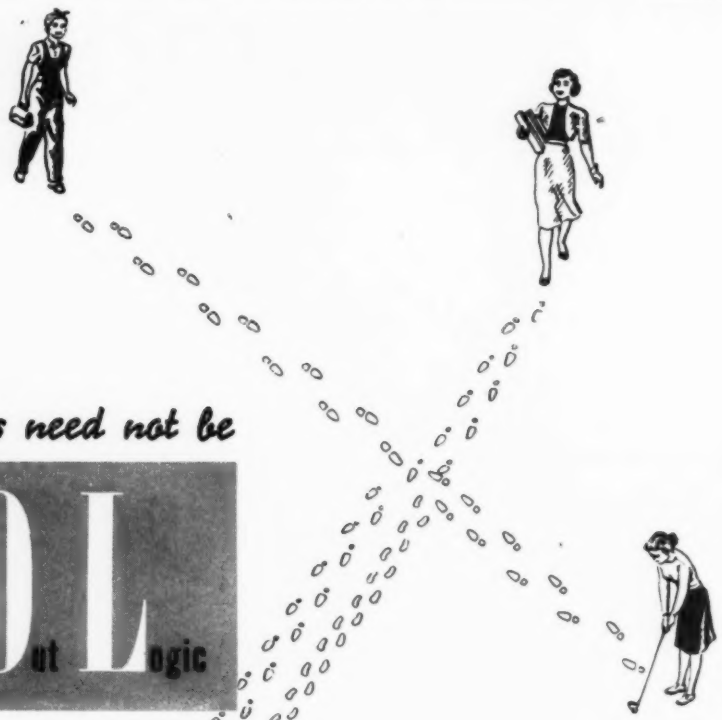

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*Based on average reported values for milk.

DENAMONE

NOT VITAMIN E

Concentrate of Ketones in Wheat Germ Oil

False impressions, have a way of persisting. There is a formidable literature indicating that wheat germ oil, or its concentrate, aids in the prevention of habitual abortion, and in the treatment of threatened abortion.

This effect is not due to vitamin E.

Denamone is a ketonic fraction of wheat germ oil prepared by the Girard-Sandulesco procedure, and ***contains no vitamin E.*** Current studies reveal one or more ketones—almost certainly steroids—having hormonal activity affecting the reproductive mechanism (Endocrinology, 49:289, 1951).

A new factor essential for survival of the young has been found in Wheat Germ Oil (Jl. Nutrition, October, 1951), and is being confirmed in a continuation of these studies.

This factor is not vitamin E.

Silbernagel[1,2,3,4], elucidates the effectiveness of Denamone in the control of habitual abortion. These data are now brought up to date with 1,000 consecutive patients.

	No Treatment 1973 patients	Denamone 1000 patients
Threatened abortion	16.6%	9.5%
Abortion	15.0%	3.4%
Abortion (corrected)	14.0%	2.6%
Prematurity	7.1%	3.1%
Toxemia	10.0%	1.8%
Stillbirths	2.3%	0.5%

Denamone contains no vitamin E.

Currie[5] treated 37 cases with a history of 135 previous pregnancies; 114 abortions and 16 live infants. All had no less than 2 previous pregnancies. These 37 patients were treated with a wheat germ oil concentrate. 37 live infants were born; 2 sets of twins, 2 patients aborting, 4 prematures did not survive.

The preparation used was wheat germ oil, not vitamin E.

Macdonald[6] treated 18 cases with a history of 53 previous pregnancies; 49 abortions and 5 live infants. These 18 patients were treated with wheat germ oil. 17 terminated successfully.

The preparation used was wheat germ oil, not vitamin E.

Watson[7,8,9], Shute[10], Cromer[11], McGonigle[12], Vogt-Moller[13,14] add to the history of the successful use of ***wheat germ oil, not vitamin E,*** in the prophylaxis and treatment of spontaneous abortion.

Unpublished studies reveal that Denamone should be explored in the treatment of sterility, dysmenorrhea, and menopause.

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*Lowry, K. F.: Management of Resistant, Non-healing Skin Lesions. Postgrad. Med. *11*:523, 1952.

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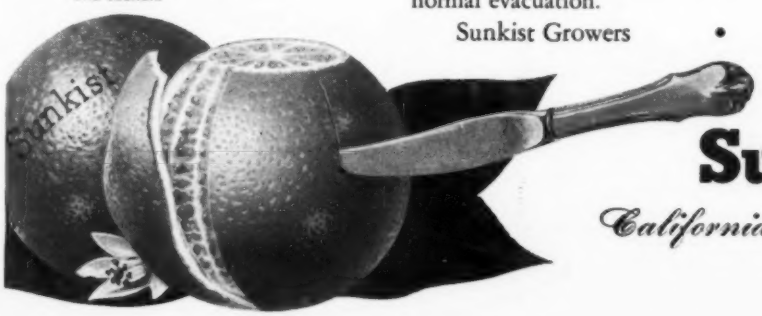

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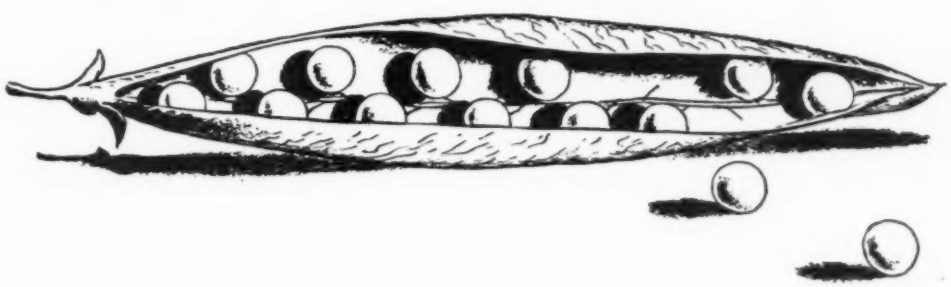

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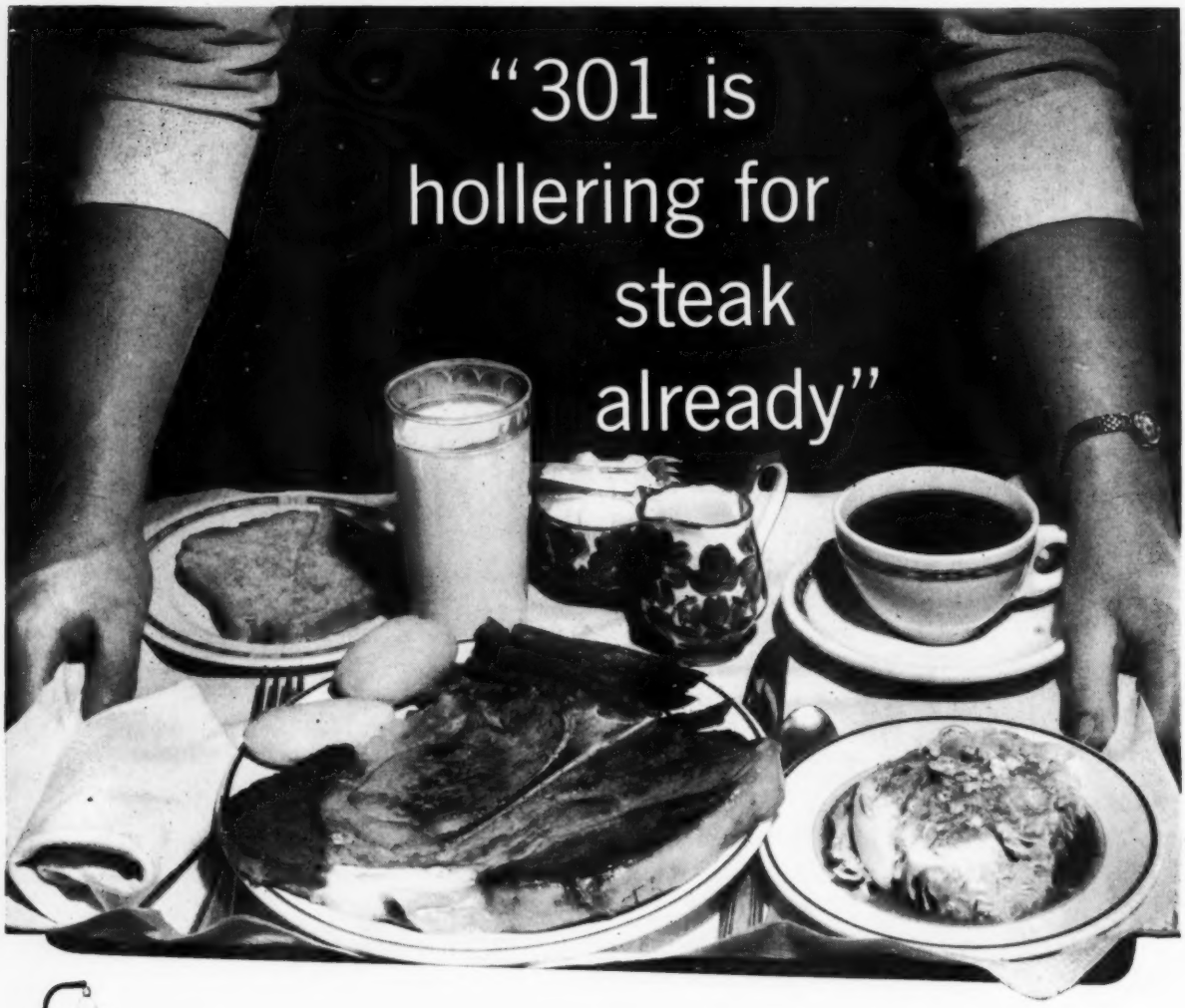

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1. Fox, C. L. Jr., et. al.: An Electrolyte Solution Approximating Plasma Concentrations with Increased Potassium for Routine Fluid and Electrolyte Replacement, J. A. M. A., March 8, 1952.

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Symposium: Osteopathic Contribution to the Concept of Body Unity*

Introduction

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Andrew Taylor Still rephrased and re-emphasized one of man's oldest problems when he said, "To find health should be the object of the doctor."[1] Since earliest recorded history, and presumably before that, man has been concerned with the central problem, what is health and what impairs it?

Man has striven mightily to bring forth the answer to that problem. His labors have been productive of answers—too many answers—too many answers because in his search man has explored in many directions, without sufficient correlation of his findings. He has become engrossed in the immediate interests of his separate fields of exploration and, in many instances at least, has lost sight of the central problem.

History reports man's great concern with demons, superstitions, magic, and panaceas as they have contributed to or detracted from "health." He has engaged in expensive, disastrous, and futile controversies over the relative values of proclaimed "truths," "cures," and "cults." Such controversies usually developed through the concentrated and exclusive attention to a single facet of this complex organism which is man.

Korzybski[2] has pointed out the inter-relatedness of all factors in our world, particularly the need to recognize man as an organism-as-a-whole-in-his-environment. He has also shown that it is beyond the scope of the human mind to know everything about anything. His observations seem particularly appropriate when considering the problem, "what is health and what impairs it?" While the inter-relatedness of the body, mind, and environmental components of man are recognized to a degree, we certainly do not know everything about any of them, and the dimensions of the fields of knowledge about man are so great that it has been necessary to segregate and compartmentalize them.

In the field of medical education, the student has been requested to study the normal as a basis for understanding of the abnormal. The normal, alone, has proved a complex subject. A group of sciences has developed that is known as basic sciences. The term "basic science" is commonly held to include such things as anatomy, embryology, histology, physiology, physiologic chemistry, pathology, immunology, bacteriology, et cetera. Each of these "labels" embraces such vast fields of knowledge that brilliant men devote their entire lives attempting to assimilate portions of them. And still much remains to be learned in each of them.

The acceptance of these labels as indicating clear-cut sciences tends to convey a falsehood. One is led to believe that each is a separate science and, in its own right, important. This segregation, this dichotomy, exists only in the minds of men. Anatomy, embryology, histology, et cetera, are terms which apply to processes that exist and operate simultaneously in the organism, man. They are interdependent and have no existence except in relation to each other.

This compartmentalization has not been limited to the area of the basic sciences in the study of man and his health; the clinical area, in medical education, has experienced the same type of dichotomies. Medical students spend one hour learning of the diseases of the heart and the next hour in the study of psychologic problems as if the two were entirely divorced subjects. Or they may devote one semester to the understanding of arthritis, and the next semester to the study of diabetes with no indication of any relatedness between the two.

This departmentalization is not limited to medical education. It is encountered in the care of the sick. Urologists deal with problems of the genitourinary system; cardiologists with the problems of the heart; otorhinolargyngologists with ear, nose, and throat problems; psychiatrists with nervous and mental conditions; and the patient, the organism-as-a-whole, is lost in the grand shuffle from department to department.

The problem, "what is health and what impairs it?" was labeled earlier as a central problem. It was so labeled to indicate it as a hub or core, from which

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many spokes, or lines of radiation, emanate. Some of these spokes have been identified as the basic sciences, some as the specialties in the clinical area; others exist in the spiritual fields, et cetera. I find the analogy of the wheel to be useful in the understanding of the problem before us. The central problem, "what is health and what impairs it?" forms the hub of the wheel; anatomy, physiology, the other basic sciences, plus the many fields of clinical interest, both physical and psychic, plus those vast areas of spiritual influences, plus the "as-yet-unknowns," form the spokes. The hub of a wheel and the spokes emanating from that hub form an incomplete structure. A rim is necessary before the structure can serve its most useful purpose, because the rim establishes the inter-relatedness of the component parts, maintains their stability, and makes possible the advancement or progress of the whole structure.

In the consideration of that same central problem, "what is health and what impairs it?" the rim appears to be supplied in the concept of body unity, in the recognition of the unified structure-function of body and mind. The recognition of man as an organism-as-a-whole is an obvious necessity. It is so obvious that it has been overlooked in the rapid development of the medical sciences in the past century. Our attention has been captured by the immediate drama of the development of knowledge in the many separate fields to such an extent that we, who are engaged in the many medical sciences, have failed to recognize, effectively, the inter-relatedness of the whole organism.

Dr. Still postulated a theory concerning health and what impairs it, in which he recognized the organism-as-a-whole. He developed an application of his theory based on that recognition. We physicians who have followed the development of his concept are dedicated to the concept of body unity as the very basis of our osteopathic principles. Today we are not alone in emphasizing body unity as the basis for the understanding of the problems of health. Many brilliant thinkers in the medical world are directing their attention to the importance of recognition of the organism-as-a-whole.

The symposium which follows will discuss some of the aspects of osteopathic contribution to the concept of body unity.

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The Somatic Component*

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From the philosophic viewpoint the biologic and medical sciences appear to agree that the human organism is a unit composed of highly inter-related and interdependent parts. It might be assumed, on the basis of this agreement, that because of this inter-relationship and interdependency, an abnormal situation in one part of the organism would be automatically reflected in many, if not all, other parts. However sound this might be from the theoretical standpoint, such an assumption has not been generally accepted at the practical level in the actual care of patients. Apparently the basic reason for this is that important systems and organs have a certain amount of reserve or protection which permits them to at least simulate† normality even in the presence of pathologic influences. For example, a child may have a fractured humerus which, when reduced and immobilized, apparently has little if any deleterious effect elsewhere, not even in the heart and lungs, which are closely related neurologically to the upper extremity.

Thus, an apparent clinical independency of systems has led to a widespread, and we believe incorrect, acceptance of compartmentalization of diagnosis and treatment of disease. We believe this is incorrect since it does not appear logical to infer that a system is normal simply because currently used methods of diagnosis fail to reveal pathology when the patient is at basal activity.

However, at this point we must differentiate between our responsibilities in studying and developing concepts which might lead to improvement in the care of patients and our responsibilities in the practical care of the patients who are in our offices today. We must keep these areas separate for a very simple reason. In one area, that of actual practice, we care for many patients who, due to various factors, have seemingly irreversible pathologies which we can repair, substitute for, or palliate, often very effectively for long periods, but which we are unable to eliminate. In fairness to these patients we must continue to use present methods, which impose a greater compartmentalization of our efforts than our unitary concept would, from the philosophical standpoint, justify. In the other area, that of extending our understanding and ultimately our practical methods, we must identify the dynamic factors which appear to be central in the production of irreversible pathology so that this knowledge may lead to prevention, or, at least to treatment, in a stage when a return to normality can still be achieved. A case from my practice will illustrate this point.

A business executive, aged 50, had epigastric discomfort which radiated to a more sharp pain in the midscapular area of the back. These symptoms were not constant; however, they were related to business affairs, being more pronounced during periods of stress when the patient was fatigued. On three different occasions a survey of the gastrointestinal tract by competent allopathic internists failed to reveal pathology. Psychiatric care aided the patient in understanding his problem, but reducing his activities failed to make much improvement. Examination of the skeletal system revealed severe osteopathic lesions

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†The word "simulate" is used advisedly. It is not only possible, but probable, that improved methods of analysis will show widespread influence too subtle to be detected at present.

characterized by a considerable flattening of the thoracic curve and marked tissue-texture irritability and hyperesthesia of the tissues closely investing the mid-thoracic spines. Manipulative therapy to this area consisting of slowly applied and released stretching forces followed by sharply applied thrusting forces which mobilized the joints with a cracking or popping sound, applied about once each week, gave the patient nearly complete relief from the epigastric and back symptoms, except for rare flareups over a period of more than 5 years. However, all during that period, while the hyperesthesia and tissue changes in the thoracic spine were moderately ameliorated, they were still present, and a period without treatment or an incident where the area was subjected to stress such as a long automobile trip caused some recurrence of the original symptoms and osteopathic findings.

Hence, while in practice we must continue to treat actual conditions to the best of our ability, we must also take from those conditions every possible clue which might lead to their prevention or to their early elimination.

There has been mounting evidence that the concept of body unity is far more important in matters of health and disease than widely accepted clinical practices would indicate. This began with the physiologic studies of Claude Bernard who realized that to maintain life the constancy of the "milieu interne" must be preserved in spite of changes in the environment, and the clinical observations of A. T. Still who, to use the words of the chairman of this Symposium, "postulated a theory concerning health and what impairs it, in which he recognized the organism-as-a-whole," and who "developed an application of his theory based on that recognition."

There appear to be two basic reasons why the somatic or, possibly more correctly, the musculoskeletal component of the organism contributes to the concept of body unity. First, every organ and tissue in the body has a distinct and well-defined anatomic and physiologic relationship to a part of the somatic system through the segmentation of the voluntary and involuntary nervous systems. Second, clinical methods have shown that somatic structures are abnormal in the presence of pathology in remote tissues, and that therapy directed at the abnormal somatic structures may favorably influence remote disease states.

The first reason, the segmentation of the body through which neurologic connections exist between every organ and tissue and a part of the somatic system, is well known. However, it must be remembered that the physiologic mechanisms of these connections are far more complex than the anatomic continuity might imply. For example, although it is relatively simple to trace nerve pathways from one part of the body to another anatomically, the physiologic response to an irritation in one part is conditioned by the excitatory or inhibitory state of every synapse in the pathway from that part to another. This complicates, though in no sense negates, the concept of body unity tremendously, since obviously, with infinite combinations of excitatory and inhibitory states, a sharp and clear-cut cause and effect relationship between etiology and disease is the exception rather than the rule. Consequently, great caution must be exercised, particularly in the study of methods in prevention, diagnosis, and therapy, to avoid the pitfalls of oversimplification of the relationships of one part of the body to another.

The second reason that the somatic component contributes to the concept of body unity involves the relationships between the somatic system and other systems which have been demonstrated by clinical observations and experimental methods. Returning to the remarks of the chairman, it was stated that Dr. Still "developed an application of his theory," concerning the body as a whole. The application was largely the development of therapy centering around manually applied forces to return abnormalities in the mechanical framework to normal. The result of Still's early use of this application is a matter of record. His methods were clinically effective, and the fact that patients found relief from his methods when other methods failed, to the extent that his practice grew into a profession, is far more important than the fact that, for a variety of reasons, the scientific evidence of the validity of his work was not available.

A few years ago, in an attempt to determine if the osteopathic profession which Still founded continued to find his philosophy and methods effective, a questionnaire was directed to more than 200 leaders of the osteopathic profession. Results indicated that the majority believed that osteopathy is a system of practice in which biologic laws and the reactions of the patient as a total organism to the stresses and strains of his environment form the basis for diagnosis and therapy.

Many other observations concerning the somatic component have been made within and outside the osteopathic profession which support the concept of body unity. These have been discussed in an excellent review by Drucker.[1] Since a complete analysis of all the work which has a bearing on the relationships between the musculoskeletal system and the balance of the human organism cannot be included here, a few observations which appear to be particularly important will be discussed.

In 1893 Mackenzie[2] noted the production of tender spinous processes in the upper thoracic region in cases of cardiac disease. He attributed this somatic disturbance to an area of "irritable focus" in the spinal cord as a result of a bombardment of sensory impulses from the heart. Mackenzie apparently considered that the vertebral tissues were normal and that the hyperesthesia at the spines was actually an exaggerated response to a stimulus which would not have caused discomfort except for the bombardment to the cord from the heart. Wright[3] made the following observation: "Afferent impulses coming from the body wall may stimulate cells in the central grey matter subliminally and so not give rise to any conscious sensation. Impulses from an appropriate viscus (set up by disease or experimental stimulation) may be supposed to make connections with the same central pool of neurones. The excitatory state set up from both sources may serve to activate the central cells liminally and cause them to discharge, to give rise to an abnormal or exaggerated conscious sensation."

Speransky[4] and Ginsburg,[5] while investigating the functions and behavior of the nervous system in the origin and course of experimental and lobar pneumonia, found that the course of this disease might be influenced favorably, and often dramatically, by the procainization of the paravertebral muscles at the rhomboid area. However, this work was done in the course of extensive studies on the role of the nervous system in the pathogenesis of various diseases and the demonstration that application of procaine hydro-

chloride to muscle, with its network of nerves, was followed by a favorable change in the pneumonic process merely showed a relationship between the somatic and visceral systems.

More recently Rinzler and Travell[6] have made extensive studies of the relationship of the myofascial genesis of pain in connection with a number of different clinical conditions with much of the work involving coronary heart disease. This work has centered around the observation that a "somatic blockade" of myofascial "trigger areas" by infiltration with procaine hydrochloride, or by spraying the overlying skin with ethyl chloride, may terminate a pain cycle involving a viscus, permanently or for long periods, despite the short duration of the anesthetic.

Travell[7] gives an excellent description of the step by step progress toward relief of cardiac pain in reporting the case of a 79-year-old physician in whom ethyl chloride spray eliminated diffuse and very severe chest pain on several occasions after the patient had suffered an acute coronary thrombosis. Some mild and more localized pain remained and hypersensitive "trigger zones" were found in the musculature of the anterior chest. This pain was exaggerated by the introduction of a needle to procainize the myofascial tissue and was abolished by infiltration with the local anesthetic.

While this work obviously demonstrates a relationship between myofascial trigger zones and the pain of cardiac and other disease, and hence a relationship between mechanical and visceral systems, these investigators do not feel the evidence warrants any conclusion that mechanisms exist by which pathology in one system might cause abnormality or dysfunction in another. In fact they state "when local block relieves pain, no immediate deduction can be made from that fact alone as to the primary cause of the pain syndrome."

Regarding experimental work, it has been shown in our laboratories that a high degree of correlation exists between the tissue abnormalities which characterize osteopathic lesion pathology and certain changes in the corresponding segments of the spinal cord. This work started as an attempt to gain information concerning the mechanisms behind the palpable and hyperesthetic tissues of lesion areas. It has been found that the connector neurons or the ventral horn cells, or both, in a lesion segment are in a state of chronic facilitation. This has been shown by the motor response of muscle in normal and lesion areas to certain types of stimuli.

For example, when there is marked lesion at the fourth thoracic vertebra and a normal area at the tenth thoracic the motoneurons at the fourth thoracic may be activated by pressure on the spinous process of the tenth thoracic, which is less than that required to fire motoneurons at the tenth. Obviously, the afferent impulses initiated at the tenth thoracic, inadequate to fire normal motoneurons, travel up the cord to find other bombardments and the two afferent streams result in reflex contraction at the fourth thoracic vertebra. This finding, along with the observations that such areas of facilitation may be identified and graded by palpation of paravertebral tissues, and that two physicians, examining the patient independently, record approximately, often precisely, the same findings appear to leave no doubt that the changes in paravertebral tissues and the spinal cord facilitations are intimately related.

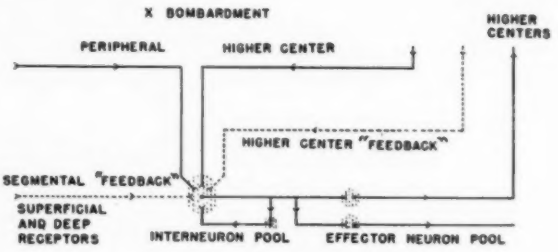

Fig. 1

This situation is set forth diagrammatically in Figure 1 in which the original afferent bombardment which establishes the facilitation, and leads to a feedback of impulses from areas affected by the primary motor response, is designated as an x-bombardment. This designation has been selected because to date, objective evidence which might permit positive identification of these afferents has not been secured, and because possible sources of facilitating bombardments which might sum with the x-bombardment have not been determined.

The matter of locating the afferents from which impulse bombardments produce cord facilitations poses serious technical difficulties. Whether or not methods such as those worked out by Magladery and his group[8] can be adopted for this purpose remains to be seen.

The problem of afferent sources which might sum with the facilitating bombardment is also difficult. For example, pressure on bony prominences (with the superficial tissues anesthetized) provides an extremely effective method of firing the facilitated motoneurons of lesion areas. On this basis we postulate that the stress of various positions of the trunk (flexion, lateral flexion, et cetera) should be accompanied by excessive activity of the facilitated area and thus give an additional and possibly a clinically useful tool for an objective determination of cord facilitation. However, preliminary experiments to test this theory have revealed that this does not necessarily occur. While this matter is receiving further attention it is obvious that the determination of what excites, what inhibits, and what has no effect on an area of facilitation is a complex problem and one which will require much additional study.

Considering the possibility of involvement of neurons other than the anterior horn cells in facilitated segments of the spinal cord, Korr and his colleagues[9-11] have studied segmental differences in sympathetic activity by means of a number of procedures, including the electrical skin resistance method. With the latter method they have found evidence of sympathetic hyperactivity through low resistance areas (LRA) in various patterns. Probably most central of their observations to this discussion is the following:

> Injection of 0.3 ml. 6 per cent NaCl into erector spinae or intercostal muscles caused appearance of LRA throughout the corresponding dermatomes (spine to sternum) which outlasted the referred pain by many hours. Experimental postural imbalance induced by wearing a "lift" under one heel for several hours produced new LRA in the segments in which pain and tenderness appeared, enlarged preexisting LRA in other, often distant, segments and further reduced their resistance. These observations support the hypothesis that myofascial and postural disturbances are accompanied by and may induce or maintain segmental hyperactivity in the sympathetic nervous system.[10]

Here is a situation where a noxious stimulus to myofascial tissues was followed by an objectively measured and subclinical change in a remote system (sweat glands). At the present time we do not know what effect or bearing this subclinical sympathetic hyperactivity may have on the total body economy or what other subclinical disturbances accompany it. However, it would be foolhardy to fail to recognize that this, and similar observations, make evident the local and remote effects of factors which alter the myofascial system.

Any discussion of the somatic aspect of the concept of body unity, to have practical value, must take into account two important considerations concerning the musculoskeletal system itself. The first is the incidence, and the second is the complexity of somatic abnormality.

Some investigators feel that man has adequately adapted to the biped stance and there are studies on individual organs and tissues which support this opinion. Nevertheless, the survival and growth of the osteopathic profession, which centers its attention on abnormalities of the somatic system, and an ever-increasing recognition of the problems imposed by erect posture indicate that few individuals totally escape effects of the "terrific mechanical imbalance" of the biped stance.[12]

Parallel to a recognition of the importance of the mechanical disadvantage of erect posture and the high incidence of abnormality of the human framework is recognition of the intricately complex manner in which mechanical abnormality operates. It has been pointed out that the great reserve of most of the important systems of the body permits relatively normal function despite pathologic influences. While this is very advantageous to comfort, and to operating efficiency, it is a great handicap to the study of these problems since it introduces an almost infinite number of variables. Cecil,[13] in discussing McEwen's paper on the genesis of pain from the joints stated, "I believe Dr. McEwen has very wisely refrained from attempting to give a definite explanation of all the pains and aches that affect the joints. I have always been interested in trying to explain the pain that so many elderly patients will have in only one knee, with advanced osteoarthritis in both knees. X-rays will show an equal amount of damage to the bone and cartilage in these joints and yet the pain will be entirely in one knee, a fact which indicates how much arthritis one can have in a joint without getting any pain at all in it. It is astonishing what severe damage can take place in a joint and still the patient will have no pain in it." Cecil did not question existence of the pain in one knee and not in the other; however his remarks pointed up the question, "What factors might account for this unilateral pain in the presence of bilateral pathology?"

This question very closely parallels important questions which face the osteopathic profession. For example, it is common to hear descriptions of the abnormal position of a lesion. Yet we may use manipulative treatment successfully without making demonstrable change in the abnormal position. Is it incorrect to assign an important place to the positional change, or did a positional improvement, too small to be demonstrated, occur?

Superimposed on the difficulties stemming from these variables is the discrepancy between the bulk of our knowledge of the mechanisms of posture and locomotion, which has come from a study of quadrupeds, and the greatly different mechanisms in erect man. Korr[14] recently pointed out "most research in the medical sciences has been conducted on quadrupeds in which this role (that of the musculo-skeletal system in exerting major influences on the balance of the organism) has much less opportunity to demonstrate itself." Therefore we must re-evaluate our understanding of the mechanisms involved in posture and locomotion through increased studies of the intact biped so that the discrepancies between these observations and those made on quadrupeds can be identified and evaluated.

Thus, while the work of the osteopathic profession contributes to the concept of body unity, the full value of this contribution must await the results of studies which give specific information about the mechanisms involved in the functioning relationships of the musculoskeletal system itself, and between the musculoskeletal system and the other organs and the tissues of the body.

We know from personal experience, that when osteopathic manipulative treatment is administered, when specific forces are applied to specific joints, such treatment has a profound effect on the joints themselves and on the symptomatology of remote systems. If we are to make the greatest possible contribution to the healing art we must find out what physiologic and anatomic abnormalities exist in a lesion; what changes occur in a lesion as a result of treatment, including and probably centering around properly applied manipulative treatment; what effect the untreated lesion has on remote tissues; and what may occur in remote tissues as a result of treatment.

As we secure the answers to these questions we will extend our understanding of the somatic component of the concept of body unity into a direct guide to improvement in the prevention, diagnosis, and treatment of disease.

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The Aspect of the Visceral Component

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The theme of this Symposium, "Osteopathic Contribution to the Concept of Body Unity," deals with advancements which osteopathic principles and practice have made to the constantly growing reservoir of basic knowledge regarding the human body and human health.

The theme of this paper, "The Aspect of the Visceral Component," deals with a definite area in the major contributions which osteopathy has made to the concept of body unity and is concerned with answering the central problem—"What is health and what impairs it?"—stated by the chairman.

This paper is based especially on fundamental contributions to the concept of body unity made by Andrew Taylor Still,[1] who discovered osteopathy, and by other individuals who have applied special skills and technics in research and practice in accordance with osteopathic principles.

In this paper the terms "concept of body unity" and "visceral component" have a broad and significant meaning. Each of these terms embraces such vast fields of knowledge that it is impossible for any individual to assimilate all that is known of them.

"The concept of body unity" means that the human body and all the parts which compose it are constructed and function as a single, collective mechanism—as an organism-as-a-whole—adapting itself constantly to ever-changing conditions in its environment.[2,3]

THE CONCEPT OF BODY UNITY

This paper is centered about the human organism —man the individual and man the member of society. As a member of society, man reaches out into his environment for his life's necessities. Through the structures and functions of his mind and body, man seeks survival and satisfaction in his daily living. Fundamentally, man, through the autonomic reciprocal interaction between the parts which compose his mind and body, working structurally and functionally one with another, seeks to make his life secure from the resources provided by nature and to provide continuity of human activities through future generations.

This concept of close reciprocal interaction and interdependence, which includes theories about natural body adaptation phenomena, was embraced in A. T. Still's concept of body unity in health and disease. Dr. Still's concept of body unity preceded the descriptions of man's adaptation phenomena by Cannon,[4] Speransky,[5] Selye,[6] Kuntz,[7] and other investigators in biologic sciences. However, the works of these investigators and their followers are bringing medical and related biologic sciences ever closer to the osteopathic concept of body unity. Their reports support Dr. Still's theories regarding man as a whole organism, with inherent adaptation mechanisms which determine the success or failure of his struggle for survival and the fulfillment of his destiny.

Man, the human organism, begins life with a definite genetic pattern which determines in large measure how, as an individual, he will be affected by other people, food, climate, geography, education, work, threats of disaster, and other forces in his environment. As man seeks his living and satisfaction from the earth and other forces about him, and as he is exposed to friendly or hostile influences in his environment, the internal structures of his body constantly change in order to maintain satisfactory relations between the individual and his world. The behavior of man's adaptive mechanisms, reflected in his health or disease, is determined by the efficiency of the various systems which compose his body as a unified whole.

According to his heredity and environment, man develops patterns of behavior or response in his body systems which make for the permanency of his existence, or which lead to his early demise. These patterns of behavior or response in his body systems are linked intimately with his mental and physical health, they express his personality and character, and they determine whether or not, as an individual and member of society, he will have a happy, healthy, useful life.

In the concept of body unity, the terms "health" and "disease" are used frequently. The term "health" means the ability of the human body to perform its various functions in such manner as to permit satisfactory adjustment or adaptation of the individual to challenging forces in its environment. More simply stated, health is the ability of the human body to sustain adaptive effort, or the ability to do those things essential for preservation of life and to do them easily. Health is partially hereditary and partially environmental in origin.

Man, the individual, varies from day to day in his degree of health. He does not always enjoy optimum health. Health depends, as does life itself, upon many in-between choices, made in large measure by autonomic involuntary adaptive functions in response to environmental challenges. The degree of health that the individual possesses determines largely his ability to reach for and attain his life's goal.

In considering the dynamic nature of health, the individual's personality and the domination of man's mind over his body must be given an important place. The domination of man's mind over his body is a determinant in shaping individual and collective destiny of the human organism. This mind-body relationship is increasingly important in view of the growing complexities of our modern living.

By their innate ability of interaction to physiologic challenges, the body and its component parts act in health as a unified, smoothly functioning, and well-ordered whole. By the same innate ability of interaction, the body mechanisms in disease act as an equally complete unit which, in this instance, is a disordered whole. Stress, injury, or disease affecting any one part of the human body causes a unified response of the body as a whole to the disturbing factors. This total body response in health and disease is organized by the nervous and endocrine systems and is manifested in all the tissues and organs which comprise the human body.

This mechanism of body unity whereby the human organism experiences health or disease is explained through osteopathic philosophy which links

man as a whole human organism with the world in which he lives, and his health and disease as natural outcomes of his relations with that world. In his discovery of the somatic factor of disease, which led to establishment of osteopathic philosophy, Dr. Still contributed important fundamental knowledge about body unity and the role of body viscera in maintaining that unity.

Dr. Still identified certain abnormal changes in the human body whereby viscera and organ systems may become disturbed in structure and function and cause the health of the body as a whole to be disordered. This phenomenon of disturbed structural integrity with related disorders in viscera and organ systems, which make up the internal environment of the human body, has become known as the osteopathic lesion. It is an abnormal body change which is frequently primary in time and relation to visceral disease, and as such it is capable of damaging its host—man, the individual—thereby favoring disabling diseases of the body as a whole organism.[8]

Based upon his concept of body unity, Still devised technics for normalizing disturbed relationships between man's body parts, thereby restoring health.[9] Through the application of these new methods, he was able to help the sick individual to become better equipped to accept usefully the friendly environmental influences and to reject with minimum damage the hostile factors which otherwise would lead to insult, injury, and disease to his whole organism. Thus, Dr. Still was able to make valid his theories regarding man as a whole biologic organism and the oneness of his body structure and function.

A complete interrelationship of structures and functions of the living organism, which supports ostepathic contributions to the concept of body unity, has been described by Speransky.[5] His theories deal with disease as a reaction of the body as a whole organism to whatever irritation any part of it receives. Speransky identifies the nervous system as having the dominant role in body response to insults. The pattern of response manifested in health or disease is determined, according to Speransky, by the pre-existing state of the individual's nervous system.

Selye[6] describes an adaptation mechanism which emphasizes the unified response of the body to stress, injury, or disease. He reports observations which point to the total response of the human organism to stress under direction of nervous and endocrine factors. He reports that both nonspecific and specific stress factors are present in practically all diseases, that nonspecific stress factors occur in defective adaptive mechanisms, and that effective treatment of disease and effective health measures leading to prevention of disease would seem to rest on aiding the adaptive mechanisms of the human body as a whole to maintain their defense functions at their optimum levels of performance.

The concept of body unity is unfolding continuously in clinical practice of osteopathy. It is being developed further through research under osteopathic auspices by Burns,[10] Denslow,[11] Korr,[8] Cole,[12] and other investigators. The concept embraces the perception of natural harmony between structure and function in the body parts operating in states of health. It also embraces a perception of natural harmony between structures and functions of the human body (collective, reciprocal, and interactive) as a whole human organism in defending itself from irritation and other disease-causing factors.

THE VISCERAL COMPONENT

The term "visceral component" in the concept of body unity, deals with the role which the body viscera and the organ systems which they compose have in the over-all mechanism of adaptation in the human organism as expressed in health or disease.

For practical purposes, the viscera of the human body may be identified with the internal environment of the human mechanism. All cells of the living human body are bathed by intercellular body fluids from which the tissue cells not only receive nourishment essential to their structure and function, but also into which the tissue cells pour their waste products. The health of the tissue cells depends upon a state of constancy of this fluid medium.[4] The constancy of intercellular fluids is influenced by anything that can affect the human body—physiologic stimuli which may be physical, chemical, psychic, or of other nature. These stimuli excite or depress metabolic functions in the tissue influenced by intercellular fluids.

The viscera are arranged to work with each other in synergistic or antagonistic functions, depending on the role which they and their organ systems have in the total economy of the human body. This implies that adaptation of the organism as a whole to its environment requires adjustments which are possible only through complex physiologic reactions. In regard to visceral participation in adaptation phenomena, MacBain[13] has written:

> No one system or organ has the entire load of adaptation—every function may enter into the response to environmental change when the necessity rises, and the more complex the organism, the greater the range of adjustment. . . . The mechanisms of the body are or become inadequate or over-respond or else the environmental change is overwhelming when disease becomes established. In any case, there is a complex and multiple failure involving total function, not merely one subdivision of the life process.

The autonomic adaptive functions of the viscera provide, in health, correlation of mind and body functions at high levels of efficiency. It is the same natural adaptive functions of viscera and organ systems which in states of deficiency or disorder bring about so-called psychosomatic diseases. The viscera are considered as important body defense systems and they include structural components down to levels of the cellular and intercellular substances which comprise them.

The value of Dr. Still's contribution, "The rule of the artery is supreme," to the concept of body unity, in which viscera play important roles, is illustrated in the activity of the circulatory system itself. Along this main course and tributaries countless small vessels extend literally miles carrying fuel, food, oxygen, and water. Through these channels pass millions of scavenger cells, gathering and destroying waste, and tending to keep the channel clean and free from encumbrances. Salvage cells repair breaks in the walls of the vessels that direct the blood to body tissues. Life and death together ride the human blood stream. Each component of the blood has an important role in the total defense of the organism which it intends to provide with life sustaining substances. At the same time, each component of the blood helps relieve the organism of poisonous metabolic end products or wastes, or poison substances or irritants which have entered the body from the outside environment.

At this point it is desirable to recall briefly the dynamics of the circulation as it pertains to visceral activities in total human adaptation mechanisms.[14] These include four major power sources: the heart, the arteries, the veins, and the muscles. The phases of circulatory dynamics correlate in function one with the other, and with the nervous, respiratory, reticuloendothelial, endocrine, gastrointestinal, and renal systems. Failure in any body system may cause failure in these four power sources which, in turn, can lead to circulatory disaster.

Accidents, illnesses, nutritional deficiencies, and other factors prevent the maintenance of the constancy of the human bloodstream and its related functions in the constancy of the intercellular fluids. For that reason, the use of blood in modern medicine constitutes one of the greatest miracles of our time. Whole blood can be transferred from one human being to another, or the blood can be broken down into its parts and these specific blood fractions or parts can be used for special purposes essential to human life.

Thus, the insight of Dr. Still, expressed in his axiom—"The rule of the artery is supreme"—is indeed a contribution of substantial value to the concept of body unity and is important to the consideration of the visceral component of that concept.

The role of disordered autonomic nervous function in disease is recorded by many investigators. For example Miller[15] reports that many patterns of clinical disease are partially or wholly expressions of autonomic activity; that the autonomic nervous system may react as fully and vigorously in the absence as in the presence of somatic damage; and that through mechanisms of central autonomic regulations of visceral functions, widely divergent clinical conditions may resemble each other and even defy clinical differentiation. Miller's observation is supported by common experiences in clinical practice where, for example, it is observed that liver and gallbladder diseases stimulate coronary occlusion, pulmonary disorders, peptic ulcer, appendicitis, and other disease conditions.[2]

The endocrine system shares with the circulatory and autonomic nervous systems in maintaining body unity and adaptation mechanisms. Each endocrine gland seems dependent on all other glands and upon nervous tissue for normal function. The pituitary, the thyroid, adrenal, gonads, liver, and pancreas have combined reciprocal interrelations or interactions to stress and strain, and they all enter into collective adaptation and immunity mechanisms of the organism as a whole.

Symptoms of disease occur because of reactions on the part of viscera and other organ systems of the body to injury, insult, infection, and other stress factors. These reactions bring about repair of injured body tissues and, in many cases, body reactions include mechanisms which actively combat the disease producing factors. Were it not for phagocytosis and immunity, every infection and attack upon the body would be fatal to that organism. Were it not for coagulation of the blood, probably no one would survive childhood because of hemorrhage which would follow the slightest injury. Were it not for regeneration of tissues, fractures would remain ununited.

Diseases in the body's defense mechanism related to disturbances in structural integrity cause the individual to experience many commonly observed symptoms of disease. These include rise or fall in temperature, pulse changes, increase or fall in respiratory rate, increase or fall in perspiration, weight gain or loss, personality changes, and other signs of mind-body disorders.

Fundamentally, disease is alike in all visceral tissues. Differences in disease conditions represent differences in body systems in which major disorders occur. Beginning with functional disorders, which are linked closely with allergic-like phenomena, disease states may continue, if their etiologic factors are not perceived and body parts normalized, into organic phases of disease in a body system and cause that body part to have adverse reciprocal influence on all other autonomic functions of the body. Disease processes appear to be closely linked transitions of morbid states in the individual's viscera and related body systems. These closely related phases of disease seem to evolve from common disorders in man's autonomic defense mechanisms—as natural reactions to injury, irritation, and other disturbing forces.

Burns,[16] in discussing visceral tissue changes following vertebral strain, states that the primary pathologic condition in different organs is alike, and different types of disease resulting from circulatory changes caused by vertebral strains depend upon the function and anatomic relations of the tissue affected. She says also that sprain or strain of any part of the vertebral column causes hyperemia, congestion, edema, fibrosis in tissues innervated in corresponding segments of the spinal cord. These pathologic conditions provide the basis for certain visceral diseases. In this way the osteopathic spinal lesion complex with its related patterns of nervous and circulatory disorders is a major somatic mechanism that determines what viscera and organ systems of the body will react or adapt badly when the individual is exposed to stress, regardless of the kind of stress.

Clinically, also, it may be demonstrated that whether visceral pathology is primary or secondary in relation to the osteopathically described spinal lesion, visceral disorders contribute to the continuance of the related spinal lesion complex disorder in the total adaptation mechanism of the individual. In some instances, visceral disorders must be removed surgically, otherwise the related somatic mechanism of disorder persists and disturbs other body viscera. For example, Brigham[17] has found osteopathic spinal lesion pathology in surgical patients with gallbladder disease, appendicitis, and other visceral disease. He reports that persistence of such visceral pathology may be responsible for persistence of spinal lesion disorders which interfere with and block the patient's recovery through disturbance of protective systems. He stated: "When after due time the symptoms of the disease are not relieved it is wise to view the case from a surgical viewpoint." In this way, according to Brigham, relief is provided for the visceral-caused spinal lesion and its widespread influence on the body's adaptive functions.

Green,[18] Eggleston,[19] and others have reported the role of faulty body stance in disturbed body mechanics and visceroptosis as mechanisms causing or favoring visceral disease. These postural disturbances also favor disorders in the fascial systems of the body including its reticuloendothelial structures which have a major role in providing the body with white blood cells and in destroying poisons and invading organisms. Considering the vast spread of the fascial

system it can readily be seen why, in the presence of faulty body stance and its related circulatory disorders, the reticuloendothelial system as an autonomic adaptive defense mechanism so often fails to perform its assigned duties in the total body economy in the individual so disturbed.

Nutrition as an example of man's environmental experiences plays a major role in visceral participation in body unity. Nutritional needs of the individual are based, first, on his genetic inheritance or constitutional pattern and, second, on his experiences with his environment. Thus correct nutrition applied to individuals with faulty hereditary patterns will help lessen adverse influences of their constitutional patterns and improve their adaptive functions. Viscera need proper nutrition for their contributions to the structural integrity of the whole human mechanism.

Among functional and organic phases of disease in viscera and organ systems there may be found certain patterns of autonomic disorders which seem to begin early in the onset of the diseases and extend well into their advanced stages.[2,16,20] Among such patterns of autonomic disorders may be identified clinical syndromes of vagotonia, hypothyroid states, hypercholesterolemia, hyperinsulinism, hypoglycemia, and other functional pathologies. Such patterns of functional disorders point to hypometabolic states and faulty adaptation mechanisms in body viscera as common causative factors in disease. Fundamental to all visceral disorders is the primary mechanism of fatigue —local at the level of tissue cells, and systemically in the larger defense mechanisms of the body. Cellular and systemic fatigue patterns represent lag or inability of body adaptive systems to respond adequately when challenged by physiologic stimuli.

Accumulating evidence points to autonomic dysfunction as closely linked system disorders which extend from primary tissue deficiency conditions, which are allergic in nature, into many degenerative diseases. These disease states range from asthma and similar allergic conditions through goiter, liver and biliary tract diseases, arthritis, cataract, diabetes mellitus, cardiovascular-renal diseases, and other progressive degenerative conditions, including cancer.

One may ask—"What is a practical application of this consideration of the aspect of the visceral component in the concept of body unity?"

Viscera which compose the organ systems of the internal environment of the human organism function in specific patterns of behavior which can be identified and their efficiencies can be measured by modern methods in scientific research. These same measures are applied clinically in laboratory examinations of body systems. For example, the quality and character of the blood may be determined by blood count, blood chemistry, serologic and agglutination tests, and other examinations. Metabolic tests, urinalysis, x-ray examinations, and other laboratory methods serve as technics for identification and evaluation of behavior patterns in body viscera. Likewise, critical structural examinations of the spinal regions and other parts of the human body reveal important information about the body's total adaptive mechanisms.

Since the body systems in states of health function in definite patterns which may be identified as such, so too visceral disorders are manifested in specific patterns of body disorder which are also identifiable and measurable. The value of laboratory methods, both for research and clinical evaluation of body adaptive states, depends primarily upon the long observed axiom that in the human body function and health depend upon order, while human disease arises from disorder.[3]

SUMMARY

It has been stated that the aspect of the visceral component in the osteopathic contribution to the concept of body unity deals with advancements which osteopathic principles and practice have made to the constantly growing reservoir of basic knowledge regarding the human body and human health.

It has been stated, also, that in the concept of body unity there is complete natural reciprocal interaction and interrelationship between the structures and functions of the viscera and other parts of the living human body in health and disease. Harmonious relationships between the structure and function of the body as a whole organism lead to health. Discordant relationships between structure and function of the body as a whole organism lead to disease.

It has been noted that viscera and organ systems working together harmoniously have important parts in adaptation and immunity phenomena which are favorable to the health and longevity of the individual. Conversely, functional activities of these same body parts working in discord or in conflict with each other lead to disorder in natural immunity and adaptation phenomena and ultimately to disease. All of these bodily changes, harmonious or discordant, are related to the efforts which nature has intended man, the human organism, who is also a member of society, to make in reaching toward survival.

Thus, while much has been learned about body unity, there is great need for continuously increasing our knowledge and understanding of the visceral component in that concept of man as a whole human organism. As we increase our basic knowledge regarding the human body—as a biologic organism-as-a-whole in its environment—we will gain better understanding of man, the individual himself. Knowledge thus gained may be applied to development of superior technics for care and prevention of human diseases—thus bettering human health and human destiny.

[45] Tennis Court

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Psychic Aspects

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It may seem presumptuous for a general practitioner to discuss the psychic aspects of body unity. However, my justification for accepting this assignment is predicated on the belief that the general practitioner should be unusually aware of the psychic aspects of physiologic function and pathologic reaction. This is particularly true of those of us who are members of the osteopathic profession. Throughout his writings, Andrew Taylor Still emphasized that man exists as a total functioning unit and that one of the major factors in the preservation of that unit rests in the stability of the mind and its components.

Before developing this discussion further, it would be wise to define two of the more important words used in this paper. The word "psychic" is continually being misused and misapplied both in the field of the healing arts and in general discussions of human behavior. The word "psychic" pertains to and is related to the word "psyche" which means the mind, that is the mental life, including both the conscious and unconscious factors. The word "unity" is another which is rather consistently surrounded by an aura of misunderstanding. An acceptable definition of unity is "a whole composed of *related individual* parts." This may seem to be a contradictory definition; however, it merely reiterates the autonomy of the individual parts of the total while emphasizing the interrelationship of the separate autonomies.

In the light of the above, we must interpret the title, "Psychic Aspects of Body Unity," to mean a discussion of the mind and its unconscious and conscious factors, first, as a physiologic autonomy and, second, as an interrelated part of the body economy. A fact which is often overlooked in the study of man and his diseases is that his psychic aspects constitute one of his major unification factors, and one of the most important characteristics differentiating him from the lower animals.

Man has existed and will continue to exist in a psychic world, a world which is dominated by his conscious and unconscious reactions to his environment. That this environment is composed of both internal and external factors is well understood, but that the mind functions at both conscious and unconscious levels is often overlooked. Individual health is preserved and maintained by the proper interchange and fluctuation of and reaction to environmental and psychic factors, but it is a matter of psychologic knowledge that the body can and does withstand a considerable amount of psychic trauma both in the conscious and subconscious levels.

Just as there are abnormal and stressful situations existing in the environment of man, so are there abnormal and stressful factors affecting the conscious and subconscious emotions; some of them are motivating forces which maintain man's supremacy. But in discussing the psychic aspects of any particular subject, we should not think of it only in terms of the abnormal; there is a normal emotional life, a normal psychologic relationship between man and the world about him, which validates existence and gives meaning to life. Therefore, normal psychic relationships should be thought of as one of the greatest contributions to a useful and happy life.

It is sometimes rather difficult to turn one's thinking to those aspects of the human body which result from perverted physiology, which in turn may be due to reactions of a psychic nature. But this must be accomplished, for we are living in what might be termed the "psychosomatic era of medicine." At present, there is probably no branch of medical literature which is so full to overflowing as this particular one. And yet, in my opinion, old-school psychosomatic medicine has not made the progress needed because that school of medicine still persists in worshipping at the idol of "etiology."

It is not difficult for us to conceive that emotional stresses and strains can cause disease, nor is it difficult to understand that all disease perhaps has an emotional component. However, it is difficult to believe that it is the emotion itself which is responsible for the pathologic reaction or the perversion within the normal range of physiologic action. Old-school psychosomatic medicine has, through some of its disciples, become so specific that it describes selected emotions as a cause for a given disease.

This approach to the psychic aspects of body unity and the disruption of unity cannot go unchallenged by a member of the osteopathic school of practice. If we are to maintain our philosophy of disease as described by A. T. Still, and as described many centuries before by Hippocrates, we must approach psychosomatic disorders in the same way that we approach any other disturbance in the physiologic economy of the body.[1,2]

The most recent work of Selye[3] and his coworkers is an example of the confirmation of the basic Hippocratic and osteopathic philosophic approach to disease. Those things which old-school medicine has termed

"etiologic" or "causative" factors of disease are, in the light of the philosophic observations of Hippocrates and Still, nothing more than trigger mechanisms or exciting factors to a generalized nonspecific response to stressful situations.

I would like here to deviate briefly from my topic to remind you that the problems of health and disease as you and I see it in our offices is an entirely different one from that which is described to us in the multitudinous texts on the practice of the healing art. There are those basic sciences of anatomy, physiology, biochemistry, et cetera, which describe the so-called average individual. There is no *normal* individual and it is even rare to see one who might be called *average*. Man is composed of variables; each human being is distinct unto himself, and this is true psychologically as well as physiologically. It is probable that no individual exists who, upon careful examination of all phases of his body function, cannot be found to harbor some form or preclinical form of disease. This also applies physiologically and psychologically.

Disease is described to us in the precise terms of the pathologist and the clinician. Yet it is safe to say that in a majority of our practices, disease exists in what is literally a no man's land of clinical evaluation. There are those cases in which present instruments of evaluation fail to indicate gross pathologies but, from the standpoint of function, the patient is ill.

It may seem sufficient to state that these patients are sick because of extraneous emotional stresses and strains, which are truly exciting causes in many cases. But stresses and strains alone can not cause disease any more than tubercle bacilli can cause tuberculosis without a lung.

Although it may appear ridiculously oversimplified, the statement must be made here that a given emotional stress does not necessarily cause sickness in a normally functioning body unit. It is possible that with stressful situations of sufficient magnitude, any degree of health might succumb from its onslaught. However, at least from a general practitioner's standpoint, it is not this type of emotional stress and strain which presents the problems in our practice. Patients with what appear to be psychosomatic disorders seem to be reacting to emotional stresses and strains which are no greater than the stresses and strains being inflicted upon individuals who are clinically healthy. Therefore, it is my opinion that a person who is psychosomatically ill is not only triggered into his illness by a variable group of emotional factors, but is effecting a response which is outside the limits for his particular body unit. We cannot escape the realization that whether we are discussing physiologic stimuli or psychologic stimuli, the body unit is still nothing more than a complex receptor-effector mechanism.

Recent investigations show that stressful situations in the form of infection and emotional and physical stimuli cause certain nonspecific reactions which are strikingly similar in all individuals affected. In other words, there is a basic human response to stress which is not particularly differentiated by the type of stimulation.[3] However, just as there are nonspecific reactions which seem to be typical of all individuals, there are those variations and exceptions which distinguish one body unit from another.

Failure to recognize the role of the individual constitutes one of the blind spots in old-school treatment of psychosomatic diseases. Lacking specificity of reaction evoked by stimuli, it is necessary to have a more basic and integrated understanding of man in whom the reaction is evoked. It is in this field which the osteopathic physician finds an unusual degree of usefulness. Still,[1] Hildreth,[4], Dufur,[5] and particularly and more recently, Dunn[6] have discussed the importance of the osteopathic lesion in the treatment of many psychosomatic disorders.

It does not seem difficult to recognize that the osteopathic lesion complex may be one of the major factors which channel emotional impulses to a given organ area and causes disturbance of function. Clinically the experience of many thousands of osteopathic physicians tends to prove that this conclusion is valid. There is little question that by normalization of spinal structures and by decreasing the facilitation in spinal segments, osteopathic physicians are doing much to give people suffering from the stresses and strains of life a more tolerable existence.

It has been my observation that an individual with a cardiac neurosis responds to psychotherapy much better if he no longer has a pain over the cardiac area. It is rather difficult to explain away a neurosis when, as a result of a psychosomatic complex, there is abnormal tension in the dorsal musculature with a resulting disturbance in the dynamics of motion of the upper dorsal vertebra. If there is such a disturbance, whether it is caused by psychosomatic stimuli or as a result of trauma, certainly an intercostal neuralgia may result. There have been many mental cardiac invalids because of an uncorrected and undiagnosed intercostal neuralgia. Therefore, in studying the psychic aspects of body unity, we must study the individual man and all of his related parts which make that unit a receiving agent effecting the response typical for that particular unit at that particular time to any type of stressful excitement.

There are three major groups into which we may classify psychosomatic disorders.

1. *Purely emotional diseases.*—It is my opinion that major problems which are 100 per cent emotional in origin rarely exist. Certainly the possibility exists, but I do not believe such disturbances are as common as some psychiatrists would have us believe.

2. *Psychosomatic disorders in which the body unit acts as a conditioned receptor-effector agent effecting abnormal responses to psychic stimuli.*—I believe this to be the most common type of psychosomatic disorder. There are many people whose bodies can function normally, or at least within a normal range, if too much stress is not applied. For example, there are those people whose thyroid glands, under basal conditions, appear normal. When examined, these people may have a perfectly normal basal metabolic rate and blood cholesterol ratio. However, if they are checked later in the day, after their bodies have been exposed to various stresses and strains of living, the basal metabolism remains the same or is lower.

This brings into discussion what may be a new type of disease, disease which often eludes diagnosis. This type would include those diseases of function in which many exciting factors diminish the reserves of various organs and glands to the point that they can only take care of a bare minimum of demands. When the individual is examined under favorable

conditions, a diagnosis cannot be made. It is only under the duress of stressful activity that one can get a clear picture of the individual's malfunction. If this is true in the field of neuroendocrine relationships, may it not be the same in the field of emotional conflicts?

It is well to remember in studying psychosomatic diseases and the psychic aspects of body unity that a body which does not function normally from an anatomic and physiologic standpoint can not function normally from a psychologic standpoint. If a body is sick, it is sick physically, psychologically, and many times spiritually.

3. *Psychosomatic disorders from purely physical conditions.*—This type is probably almost as rare as that in which disease is purely emotional in origin. However, all physicians know of cases of organic brain disease which cause psychologic aberrations. And in the field of geriatrics, it is necessary to recognize the sudden changes of personality resulting from the impact of what Alvarez[7] calls "the small strokes," the ravages of arteriosclerosis, and other diseases of degeneration upon the emotional phases of life.

There is little question that the general practitioner should be a major instrument in the management of psychosomatic disease. If he is aware of such disorders, he will be able to diagnose the first symptoms, and he will most often have the chance to do so, for it is rare for the psychically disturbed patient to go directly to a psychiatrist. Thus, in the field of preventive medicine the general practitioner is in a position to render real service.

What then should be the approach of the general practitioner when he is confronted with a psychosomatic problem? He should keep continually in mind the importance of studying man and his disease as an individual entity. In evaluating this receptor-effector unit, there are four major considerations:

1. *The osteopathic lesion factor.*—There are few readers who need to be impressed with the importance of the osteopathic lesion, but perhaps many have not thought much of the important part it plays in psychochosomatic disorders. I firmly believe it is one of the major factors determining the organ or organs to be affected by the psychosomatic complex.

2. *The body chemistry factor.*—The osteopathic profession has been and should continue to be interested in the body chemistry of man, particularly the body chemistry of the man who is psychically disturbed. There is considerable discussion in the psychiatric world concerning the treatment of mental disorders through control of basic body chemistry. Certainly the writings of Dr. Still[1,8] contend that the body is a huge chemical laboratory which when functioning correctly can supply those materials necessary for a normal body economy and eliminate those opposed to normality. It is the task of the osteopathic physician when treating the body unit to be sure that it receives the ingredients needed for correct metabolic function in the form of food, air, sunshine, et cetera.

3. *The neuroendocrine factor.*—The study of the osteopathic lesion complex in its relation to any disorder, physical or psychological, can not be fully and adequately discussed without mentioning the importance of the neuroendocrine system. In speaking of the neuroendocrine system as one system, reference is primarily to the autonomic nervous system and the glands of internal secretion. Certainly, if the osteopathic spinal lesion affects any visceral function, it must affect it through the autonomic nervous system. It is also apparent that the autonomic nervous system cannot be profoundly affected without modifying or altering the action of the endocrine system. Therefore, these are important factors in the study of any aspect of body economy, and particularly psychic agents.

One of the most noticeable symptoms resulting from neuroendocrine imbalances is in the field of emotional reactions. There are emotional reactions to psychic trauma and psychic stimuli which are mediated and modified entirely by the status of the endocrine system. As an example, consider the typically hypothyroid individual and the typically hyperthyroid individual. Not only are they physically different people but they are certainly emotionally different people. It goes without saying that psychosomatic factors may have been one of the exciting mechanisms for either of these diseases, and it is equally true that the body reaction to an emotional stimulus is different because of an altered capacity of that body unit to effect response.

4. *The total integration of the preceding three factors.*—I believe that one of the major tenets of the osteopathic school of practice is the integrated approach, and I believe it to be as important in this discussion as in all others. As osteopathic physicians we cannot emphasize the osteopathic lesion and ignore all other factors. Neither can we emphasize all other factors and ignore the osteopathic lesion complex. It is intellectual delinquency to see the light and call it darkness. We of the osteopathic school of practice must not forget those basic tenets of our heritage which give us justification for maintaining a separate school of practice. Certainly we cannot conscientiously treat psychic disturbances in the body unity without considering the importance of the osteopathic spinal lesion. We must investigate further its effect and its place in the clinical management of these cases.

Finally the osteopathic physician, more than anyone else, should be cognizant of the value of a good physician-patient relationship, which is most important in eliciting information about the psychic insults to body integrity. Further, the physician must be in good psychologic balance before he dares undertake the treatment of those who are not. The old idea that the physician and the minister should be one was not too far from being correct. The physician should not only administer treatment in the form of physical therapy, internal medication, et cetera, but he should constantly act as counselor to the patient who is searching for a better individualized philosophy of life.

If the physician does nothing more than help his patient realize the true values of living and reach a better understanding of himself and his reactions, he will have served well. The osteopathic physician should be in the vanguard of the development of this particular phase of service. It is a challenge to the osteopathic concept to apply it to the thousands of sick people who are said by many doctors to have nothing wrong with them but "nerves."

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The Aspect of the Metabolic Processes

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In any discussion of body unity consideration must be given to the integrating factors which correlate the activities of the various components and thus create unity. In discussion of body unity in man one of the most important factors contributing to unity is the endocrine system which, either directly or indirectly, influences every activity within the human organism. Without the hormonal fractions to serve as activators, inactivators, mediators, inhibitors, et cetera, functions of the human body would come to a virtual standstill. Consequently, in discussing body unity, great stress must be placed on the coordinating factors, the hormones. By definition, "The hormones are physiologic, organic compounds produced by certain cells for the sole purpose of directing, regulating, and coordinating the activities of the organism."[1]

As Dr. Eggleston has stated in his analogy of the wheel, body unity is the rim which ties the spokes and hub together and produces a functional tool. The rim binds the parts together so that no one can say, "Here is the beginning, here the end" and as long as that rim is in place no one can separate the parts. Such unity of structure and function forms the basis for the osteopathic concept, as proposed by A. T. Still. In his "Osteopathy, Research and Practice" he wrote, ". . . look upon the human body as an organized brotherhood of laborers. The business of the operator is to keep peace and harmony throughout the whole brotherhood."[2] At another time he wrote, "The better I am acquainted with the parts and principles of this machine—man—the louder it speaks that from start to finish it is the work of some trustworthy architect; and all the mysteries concerning health disappear just in proportion to man's acquaintance with this sacred product, its parts and its principles, separate, united, or in action."[3] These statements are a little flowery, as were most writings of Dr. Still's period; nevertheless, the foundation of our school of medicine based on a concept of body unity is clearly stated. Perhaps a statement of this philosophy in modern language would be more acceptable: "If health is to be construed as normal equilibrium with proper function in all organs, doing their job in proper manner, then disease must be construed as a departure from dynamic equilibrium. The need, therefore, is for the physician to serve as a health engineer, an analyst, whose function is to readjust the equilibria of the body and bring them back into normal homeostatic balance."[4]

In single-celled organisms a certain degree of coordination or integration of functions exists, although it is very simple. In man, evolution has produced a much higher level of biologic integration through development of a specialized nervous system and a complex endocrine system. These integrating factors initiate a chain of reactions involving many chemical processes in widely separate tissues. At the same time hormonal fractions are released which tend to limit these integrators and prevent overstimulation. Actions of these various fractions are all correlated to produce an organism acting as a unit, whether in health, disease, defense, or whatever environment it finds itself. According to Houssay, "Through all these mechanisms the glands of internal secretion contribute significantly towards the assurance of the unity of the organism, the correlation of its parts, and the equilibrium of its function."[5]

The endocrine system is organized so that a series of checks and balances regulates the function of each gland. For instance, each gland is under partial control of the pituitary, either directly or indirectly, and each of these glands in turn exerts some regulatory influence on the pituitary. The anterior pituitary elaborates many tropic factors which stimulate certain target glands to secrete hormonal fractions. These hormonal fractions in turn inhibit the anterior pituitary and reduce or suppress production of certain tropic factors. The various endocrine glands also have a direct effect on each other, so that their functions are interdependent. A third, and very important, control is the inter-relation of the endocrine system and the autonomic nervous system. Each appears to exert a regulatory influence on the other, which results in equilibrium between the anabolic and catabolic processes of the body.

These controls act so well that there can be no such thing as stimulating one endocrine gland. Through the interplay of secretions and controls and the effect on so many varied chemical processes, eventually the entire endocrine system is influenced to some degree. The stimulation of one gland causes secretion of hormonal fractions which either stimulate or inhibit a second gland, which in turn influences a third, et cetera, until the cycle is completed with inhibition of the gland originally stimulated.

No functions exist in the human organism which are not under at least partial control of the endocrine system. Digestion of food, its conversion to supply energy for heat, materials for tissue repair, regulation of blood sugar level, and regulation of blood pressure and pulse rate are all under partial hormonal control. So, too, are locomotion, cerebration, reproduction, and the body defense mechanisms. Hormonal fractions also

regulate body response to various stresses such as fright, heat, cold, trauma, burns, et cetera. Without the endocrine regulating mechanisms there can be no harmony in function, no uniformity in action, and no common defense. Without endocrines the body becomes merely a loose confederation of parts with no connecting bonds other than contiguous structure. In the light of modern interpretation Dr. Still must have had these principles in mind when he wrote: "Each [organ] must help to keep up the universal harmony by furnishing its mite of its own kind,"[6] and when he wrote: "We will have to reason that man is a machine of form and power, forming its own parts and generating its own powers as it has use for them."[7]

To demonstrate the manner in which the endocrine system serves as an integrator in metabolic processes, consider the regulation of the blood sugar level. This is not a simple process of converting starch to glucose to glycogen and its storage in the liver under the influence of insulin. On the contrary it involves secretions of several endocrine glands and more than a dozen different chemical reactions. However, for the purpose of this discussion the procedure will be kept as simple as possible. One of the most important steps in the breakdown of glucose is phosphorylation, controlled by the enzyme phosphorylases, the chief of which is hexokinase. The amount of hexokinase is determined largely by balance between the diabetogenic factor of the anterior pituitary and insulin from the islet cells of the pancreas. Increase in insulin secretion, or decrease in diabetogen secretion raises the hexokinase level, increases phosphorylation, and decreases the blood sugar level. Conversely, any decrease in insulin, or increase in diabetogen, lowers the hexokinase level, decreases phosphorylation, and raises the blood sugar level. With the storage of glycogen in the various tissues a new series of chemical reactions results which involve the hormones of the adrenals and the B complex of vitamins. Also concerned with maintenance of the blood sugar level are the processes of gluconeogenesis, the formation of glucose from protein under the influence of steroid hormones of the adrenal cortex.

To further demonstrate this close interrelationship of factors regulating the blood sugar level, I will cite briefly a case of diabetes. A white female, aged 30, maintained a blood sugar level of 250 mg. per cent on 15 units of protamine zinc insulin daily with a 1,200 calorie diet (high protein, moderate carbohydrate, low fat). The addition of vitamin B complex daily reduced the level to 180 mg. per cent. At this point manipulative therapy, including cranial manipulation, twice weekly was instituted. The blood sugar level was reduced to 120 mg. per cent and remained there as long as the patient received manipulative therapy twice weekly. With its discontinuance, blood sugar returned to the higher levels and remained there.

Another example of the importance of hormonal factors as integrators is the response of the body to stress. Whatever factor may be the stress agent, there is a definite adaptation response by the body, and the endocrine system plays an important part in resistance mechanisms. The sum of all adaptative responses has been termed the general adaptation syndrome. Prominent somatic changes are: involution of the thymic-lymphatic apparatus, appearance of gastrointestinal ulcers, and enlargement of the adrenal cortices with discharge of cortical hormones, lipids, and ascorbic acid. These reactions are in addition to many specific defense reactions which include maintenance of body temperature, blood pressure, osmotic pressure, et cetera.

The general adaptation syndrome can be divided into three distinct stages or phases, (1) alarm reaction, (2) stage of resistance, and (3) stage of exhaustion. The third stage appears only when the individual is unable to maintain adaptation and the many symptoms of alarm reaction reappear. This phase has often been called secondary shock and usually is fatal, as the protective mechanisms have proved incapable of maintaining resistance against the stimuli bombarding the individual.

The alarm reaction is defined as the sum of all nonspecific phenomena elicited by sudden exposure to stimuli which affect large portions of the body and to which it is either quantitatively or qualitatively not adapted. Any change in environment will evoke at least some mild manifestations of the alarm reaction. The more powerful agents or stimuli evoke a complete alarm reaction, provided they do not cause death due to specific selective damage to vital organs. Some phenomena of the alarm reaction are passive and represent the signs of damage or shock; others are manifestations of active defense against the stressors or stimuli. Consequently, the alarm reaction can be divided into two distinct phases, the second of which merges into the second stage of the general adaptation syndrome. These phases are shock and countershock, merging into the resistance stage of the general adaptation syndrome.

The shock phase is characterized by rapid development of signs of systemic damage, often designated as the shock syndrome. Characteristic changes in this phase are hypothermia, hypotension, decreased muscle tone, depression of the nervous system, disturbance of capillary and cell permeability, hemoconcentration, hypochloremia, hyperkalemia, acidosis, transitory rise followed by a drop in blood sugar, leukopenia followed by leukocytosis, eosinopenia, and acute gastrointestinal erosions. This shock phase may last from a few minutes to 24 hours depending upon the severity of the damage, and it is always followed by countershock.

During the shock phase a defensive response occurs which results in release of adrenalin, ACTH, and adrenal cortex hormones. The secondary metabolic and organic changes precipitated by release of these substances characterize the phase of countershock, or defense against shock.

In the countershock phase there is enlargement of the adrenal cortices with signs of increased activity, involution of the thymicolymphatic apparatus, and reversal of most of the changes seen during the shock phase. In other words, blood pressure and blood volume rise, and hyperchloremia, hyperglycemia, alkalosis, increased diuresis, increased muscle tone, and often hyperthermia are present. These changes are synchronous with, and largely dependent upon, increased adrenal cortex activity and release of cortical hormones into the circulation.

With the development of these changes, the phase of countershock merges into the stage of resistance, if the external stimuli continue to bombard the individual. When the individual shows adequate resistance, or the stimuli are decreased in potency, the morphologic and biochemical changes of the alarm reaction disappear, and in some instances replacement and repair occur.

However, if exposure to abnormal conditions continues indefinitely, adaptation wears out, the defense mechanism exhausts the adrenals, and the symptoms of alarm reaction reappear. This is known as the stage of exhaustion, secondary shock, or fatal shock. With this development little, if anything, can be done for the individual.

Selye summarizes the endocrine factor in body unity thus: "For the species the most important role of the hormone is reproduction, but for the individual it is differentiation and adaptation. . . . The main fatal syndromes of internal medicine (various cardiovascular, renal, rheumatic, geriatric diseases) are probably the by-products of faulty hormonal adaptive reaction to a variety of non-hormonal pathogenic agents. The apparent cause of illness is often an infection, intoxication, nervous exhaustion, or merely old age, but actually, a breakdown in the hormonal adaptation mechanism appears to be the common ultimate cause of death in man."[8]

SUMMARY

1. Probably the most important factor in body unity is the endocrine system which controls metabolic processes.

2. No bodily function is exempt from at least partial control by the endocrines.

3. Reaction to stress appears to be almost wholly an endocrine function.

4. The common ultimate cause of death in man appears to be a breakdown in the hormonal adaptative mechanism.

5. Dr. Still wrote: "We must know, if we would succeed as healers, that normal does not simply mean to place bones in normal position, that muscles and ligaments may play in their allotted places and can act with freedom at all times. But beyond all this lies a still greater question to solve, which is how and when to apply the chemicals of life as nature designs they should be."[9]

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The Aspect of Immunity

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The subject of this paper can best be summarized by a quotation from "Jordan-Burrows Textbook of Bacteriology":

Whatever resistance to disease an organism may possess by virtue of species, race and the like is profoundly influenced by its general physiological state. In general, resistance is at its height when the organism is functioning normally in every respect, and is reduced by a variety of factors which interfere with and alter the normal physiological state.[1*]

This is and has been the basic fact in immunity to infections. The great developments during the 75 years, in which bacteriology and studies related to it have progressed, confirm this fact. All the measures which make up the practice of modern immunology and the therapy of infectious diseases use this natural resistance to disease by artificial stimulation, by supplementation, or by constitutional support. Since resistance to disease is directly related to the normal physiologic state, it is directly related to total body function which should always be an important clinical consideration in infectious states.

The Jordan-Burrows text also states:

The defenses of the normal animal against infection are of two general types. The first, characterized by non-specificity with respect to the infectious agent, has been called resistance. . . . The second type, showing a greater or lesser degree of specificity, is considered here as natural immunity.[2*]

RESISTANCE AND IMMUNITY

These two terms, resistance (meaning nonspecificity or general body responses) and immunity (meaning the specific reactions of highly complex mechanisms to specific micro-organisms and toxins), will be used in this discussion. Such terminology is somewhat arbitrary as the two terms are used rather loosely in the literature, and are frequently used interchangeably. For the purpose of this paper, the term resistance denotes the responses which depend on a total physiologic reaction, a unified reaction of the body. The term immunity refers to responses which are usually specific for a given micro-organism and are

*Quotations bearing the reference numbers 1, 2, 3, and 6 are from "Jordan-Burrows Textbook of Bacteriology," by William Burrows, Ph.D., Ed. 15, copyright, 1949, by W. B. Saunders Company, and are used by permission of the publisher.

frequently artificially and specifically stimulated and supported by introduction of antigens into the body. The latter term illustrates the specialization and compartmentalization of medical practice mentioned by the Chairman of this Symposium.

Most textbooks on bacteriology, immunology, and related subjects recognize resistance or what Burrows terms "general physiological well-being" as important:

> Resistance, like virulence, is made up of many factors, some of which are known either in more or less specific form or in the terms of generalities that serve as a cloak for ignorance; others are, in all probability, as yet unsuspected. Resistance to infection is, in a sense, somewhat more complex than virulence for, as will appear, not only are there specific barriers to infection variable with respect to species and even from one tissue to another in the body of a single animal, but the efficiency of these barriers is also a manifestation of general physiological well-being and hence they are subject to extrinsic or environmental influences.
>
> The differentiation of resistance from natural immunity cannot be made with precision, for the two merge with one another and with acquired immunity without sharp lines of demarcation. In a general way they may be separated on the basis of specificity, resistance being non-specific with respect to the invading microorganism while immunity is sharply specific for a given parasite. The non-specific cellular response is intermediate between the two since the specific cellular immunity of the immunized animal is qualitatively the same, differing only in that it is markedly accentuated.[3]

Mechnikoff recognized the body defenses when he wrote:

> It is unnecessary to multiply the number of such examples; they demonstrate in the clearest fashion that, in addition to the causes of disease which come from the outer world and which are represented by the micro-organisms, there are yet other causes which lie within the organism itself. When these internal factors are powerless to prevent the development of the morbific germs, a disease is set up; when, on the other hand, they resist the invasion of the microorganisms properly, the organism is in a refractory condition and exhibits immunity.[4]

Apperly[5] states that if a number of people are exposed to infection some will acquire it and others will not. The first are said to have a high susceptibility, low immunity, or low resistance. These terms designate the phenomena, but they do not explain them. However, some of the mechanisms involved can be described.

FACTORS IN RESISTANCE

Some of the factors determining resistance are racial and inherited resistance; difference in resistance due to age, sex, climate, and season; and variations in general physiologic well-being connected with nutrition, fatigue, the capacity to maintain effective circulation, and the ability to withstand the effects of sudden temperature change. These factors, while definitely a part of nonspecific resistance, have not been successfully related to the specific immune mechanisms such as the capacity to form antibodies.

The external defenses of the organism are included in resistance. They are principally the functional integrity of the skin, the conjunctiva, the nose, nasopharynx and respiratory tract, the mouth, stomach and intestinal tract, and the genital tract. Concerning these external defenses, it is stated in Jordan-Burrows that:

> As long as the resistance of the host is maintained at a sufficiently high level, the bacteria constituting the normal flora do no harm. If, however, resistance is reduced in some manner, the more virulent forms may invade the tissues and set up an infection. The congestion of the nasal mucosa, and the consequent interference with ciliary activity and the movement of mucus, which follows the temperature shock of chilling, not infrequently make possible infection by bacteria such as hemolytic streptococci or pneumococci, which are already present.[6]

The state of general well-being and the external defenses of the organism depend on integrated body activity. All functions of the body enter into the maintenance of physiologic well-being and the external defenses so that general supportive measures have been and continue to be of prime importance in management of infections. Two body systems seem to predominate in resistance, however, and through them supportive treatment is most effective; they are the circulatory system and the nervous system.

CIRCULATORY SYSTEM

The circulatory system is the transporting mechanism which mobilizes and distributes cellular and humoral elements of immunity. Locke's[7] studies have indicated that the capacity to maintain effective circulation and the ability to withstand sudden temperature changes are associated with resistance to experimental infection. Successful therapy of infection—ancient and modern—includes measures to promote and stimulate circulation through warmth and rest, as well as a variety of other modalities. Even with the most highly specialized biologic, chemical, and antibiotic selectivity, neglect of measures to support circulation is dangerous.

Three main influences on circulation in the presence of infection are (1) the functional activity of the cardiac and vasomotor regulatory nerves, (2) the maintenance of an even body temperature through general and local warmth, and (3) physiologic rest so that body defenses are not dissipated through the expenditure of energy.

The role of the first influence, the autonomic nervous system, in the total picture of immunity is still the subject of speculation but there is certainly general agreement that it is active in controlling circulation. Different infections produce body responses that are essentially alike even when caused by a wide variety of invading organisms. These responses include increased heart rate, elevated blood pressure, deeper respiration, decreased activity of the sweat glands, elevated temperature, et cetera. Except for the elevated temperature, the responses are similar to those resulting from any stimulation of the sympathetic division of the autonomic nervous system. It is the opinion of clinicians that the functional state of the autonomics is important in the general circulatory response to infection.

The functional state of the vasomotor nerves governing circulation to infected tissues is also considered significant in immunity. The local response to an invading organism is first a vasoconstriction, followed by a concentration of the phagocytic elements of the blood in the area and an accompanying vasodilation. There is usually inflammation, with hyperemia, and some extravasation of fluids and cells into the involved tissues and membranes. With the inflammatory process, whether rhinitis, pharyngitis, bronchitis, pneumonitis, enteritis, or any other local inflammation, a bombardment of afferent impulses to the spinal centers is set up.

The afferent impulses in turn stimulate reflexly and through facilitation, an increased efferent outflow

so that the vasomotor nerves to the area are soon transmitting a functional volume beyond their capacity. The normal response to inflammation in the invaded tissue thus becomes complicated and usually excess congestion takes place. Treatment must be directed toward the restoration of normal reflex activity and normal vasomotor tone. This can be accomplished by treatment to the spinal reflex centers governing vasomotors to the area, by counter-irritation, and by thermal methods. The maintenance of normal vasomotor reflex activity in an infected area permits beneficial active hyperemia. Abnormal vasomotor influences in an inflamed area tend toward passive congestion.

The further support of circulation through general body warmth and by physiologic rest of tissues also is beneficial.

AUTONOMIC NERVOUS SYSTEM

The second predominant system in resistance, the nervous system, particularly the autonomics, has a less understood role in immunity than does the circulatory system; at least our knowledge of it is not so well established. Its intimate relationship with the circulatory system which alone makes it important in resistance is generally known and understood. But in addition, some evidence indicates that it has a direct bearing on immune reactions, particularly of the nonspecific type.

Kuntz[8] reports experimental findings of several investigators which suggest that the distribution of leukocytes and the permeability of blood vessels are under nervous regulation. Along with this, the alterations in the splanchnoperipheral vascular balance accompanying an infective chill are attributed to nervous influences. Kuntz also records other findings to indicate that the autonomic nervous system has some part in regulating the production of immune substances, particularly in initiating antigen-antibody reactions.

The role of the nervous system in determining the reaction of the body to insults and injuries of all types, including infection, characterizes Speransky's "A Basis for the Theory of Medicine."[9] He interprets his experimental work as establishing a dominant role for the nervous system in the response to infections of all kinds.

OSTEOPATHY AND RESISTANCE

The contribution of the osteopathic concept of body unity to immunity is twofold—(1) in the evaluation of etiology and (2) in treatment. Application of osteopathic principles to etiology and treatment is most successful in the large common groups of diseases in which, to date, general body resistance or nonspecific immunity predominates in importance. These groups include common infections of the respiratory and gastrointestinal tracts, most virus infections, and many of the exanthemata.

The osteopathic contribution to the evaluation of etiology also is two fold. (1) It recognizes multiple etiologies of many infectious diseases; etiologies operating primarily to lower resistance to bacterial invasion. When infection does occur, it is often a contributing rather than an essential cause. (2) Osteopathy attributes to the somatic tissues—their tensions, stresses, strains, and inflammations—a frequently predominant place in preparing the ground for the invasion or activation of many pathogens. This approach to etiology leads to a workable diagnosis, not exclusively bacteriologic.

In treatment, the patient and his resistance to these nonspecific and common infections become of prime importance to the osteopathic physician. The particular pathogen is second. Treatment is directed toward supporting the resistance of the patient by every means available. In treatment, osteopathy also makes a unique, distinctive, and basic addition. Using all rational supportive measures, it emphasizes the removal of those somatic pathologies which have predisposed to disease or which, developing during the course of the disease, become complicating and maintaining entities. In addition, manipulative therapy, per se, properly chosen and administered, is one of the most effective methods of favorably influencing circulation and the regulatory functions of the autonomic nervous system. It is a method which does not deplete the body's resources, and this aspect encourages its more widespread use in preference to approaches with greater risk and uncertainty.

LIMITATIONS OF RESISTANCE

Limitations of purely nonspecific treatment also must be recognized. Some of the most virulent infections, though fortunately not the most widespread, are those against which there is very little natural immunity or only immunity of short duration. In these diseases, bacteriology and its allied sciences of immunology and epidemiology have written one of the most dramatic chapters in modern medicine. Public health measures have removed many infections at their source and systematic immunization has wiped out or controlled some formerly epidemic diseases such as smallpox and diphtheria. The dread pair, tetanus and rabies, can be prevented even after direct exposure. Successful therapy for infectious diseases did not keep pace with the progress of epidemiology and immunology. Now the antibiotics have partially met that lack. They give a rounded armamentarium against bacteriologic diseases and to immunology, perfecting methods of prevention, diagnosis, and treatment.

LIMITATIONS OF SPECIFIC IMMUNITY

While modern miracles should be given due credit, realism requires some comments that may help to strike a balance between general resistance and the specialized and compartmentalized science of bacteriology where management is based on artificial rather than natural methods of immuniaztion and treatment.

1. The principles of specificity, so successful in some fields, are failures in others and are often used in fields where they do not apply. The history of medicine for the last 50 years records continued use of many ineffective treatments despite clinical failure and ordinary common sense. Examples are the innumerable vaccines, sera, and other cures for colds, influenza, poliomyelitis, et cetera, advanced with at least some semblance of scientific basis, only to be eventually, though reluctantly, dropped in favor of a succession of new methods which, in turn, were discarded. These treatments usually detracted from the patient's own natural resistance. An even more serious effect was the neglect that resulted from their substitution for and replacement of physiologic and rational methods. Advances in knowledge should be encouraged but not at too great a cost.

2. Immunization and treatment by artificial methods invite a certain degree of risk. In the grave and specific diseases this risk is taken readily and wisely. But in the decreasing scale of virulence, there are conditions where the risk may be as great or greater than the gain. This is true in certain less specific immunizations.

It was true during the use of autogenous vaccines, sera of innumerable variety, and certain so-called bactericidal drugs and agents. The above is currently important because of what appears to be an increasing sensitivity and allergic response to some of the more commonly used antibiotics. Studies in enzyme activity show that some of the essential enzymatic reactions are depressed or counteracted by several commonly used antibiotics, which may account for the prolonged convalescence frequently following antibiotic treatment. The physician who commands adequate and effective nonspecific treatment should avoid these risks wherever possible and especially where osteopathic experience shows them to be unnecessary.

3. The increasing uncertainty as to continuing effectiveness of the antibiotics in the common or ordinary infections is becoming evident. Miller[10] says that we should not look a gift horse in the mouth, but goes on to discuss three new problems in the treatment of infectious diseases. They are, first, the increasing incidence of drug resistant infections, second, the increased numbers of unusual secondary infections in patients undergoing treatment with antibiotics, and third, the modified response of the patient to infection when being treated with cortisone and ACTH.

Prigal, Molomut, and Haber[11] noted more strains of bacteria resistant to antibiotics in their second recent series cultured from the upper respiratory tract in humans than in similar previous studies. They say, "A most significant factor . . . is the relatively large number of organisms [approximately 50%] unaffected by antibiotic action," and also, "As observed in these studies, the number of uninhibited organisms is still formidable, despite the newer wide-range antibiotics, making random choice of an antibiotic hazardous. Fortunately, patients recover because of the production of 'immunity,' since patients did recover, in the majority of instances, from infections before the advent of antibiotics." In their summary, they say, "Other evidence also indicates a wide area of ineffectiveness of the five antibiotics [penicillin, bacitracin, streptomycin, aureomycin, and terramycin] against organisms cultured from sinorespiratory infections."

4. The over-reliance on antibiotic treatment, extending so often to blanket prescriptions with no consideration of indications or contraindications, often in the absence of even the most elementary diagnosis, borders on charlatanism. It detracts from a study of the basic causes of disease and substitutes, in so many cases, a treatment that is not only ineffective, but one which takes the place of sound therapy.

RESISTANCE A GENERAL BODY FUNCTION

The science of bacteriology, sired by Pasteur and nurtured by Koch, began its great development in 1880. Dr. Still[12] in 1874 said that the body contains within itself the substances necessary for its own recovery and repair. He was aware of the general principles of protection against disease and this statement is but one of many examples of his keen perception. Of course, he was not aware of the minutiae which have since been discovered. Some of the substances which protect against and counteract infection have since been shown to be highly complex antigens and antibodies, toxins and antitoxins, haptens, lysins, opsonins, agglutinins, precipitins, phagocytes, et cetera. They are part of the life process and are dependent ultimately on the coordinated function of all body tissues and organs. It is significant that while the many end products, some of which are listed above, are recognized, understood, and used, their origins and even their intermediary stages within the organisms are still a matter of speculation. They cannot be separated from the other adaptive and protective mechanisms of the body.

SUMMARY

The osteopathic contribution to the concept of body unity as it concerns immunity is one of emphasizing the complete inter-relationship of tissues and functions in the response to bacterial invasion. What was philosophic intuition in Dr. Still has been shown to be scientifically sound and of the utmost practical importance. The practice of modern medicine, whether old-school or osteopathic, relies on these inherent resistive powers of the body for prevention, diagnosis, and treatment. The emphasis on methods is different between the schools. The nonosteopathic schools of practice have developed the artificially stimulated and supported immune reactions to a high degree of effectiveness and with unquestioned benefit to mankind. The limitations of artificial immunology have not been fully recognized by some practitioners and its concentrated pursuit has led to errors of overemphasis, to failure in some fields, and to disappointing, even dangerous responses in others. Widely used artificial methods have led to the neglect of important general supportive treatments that will always have a place in therapy.

Osteopathy has demonstrated the importance of the general body resistance. It has shown that nonspecific resistance and the important phases of immunity which it includes can be effectively stimulated, sustained, and augmented through measures which influence chiefly the nervous system and the circulatory system.[13,14,15] These distinctly osteopathic measures are applied through the somatic skeletal tissues.

Before much modern therapy in infectious diseases was known, osteopathic clinical experience demonstrated an effective treatment for infections and the profession made an impressive clinical record on that treatment. That record continues today in many commonly encountered infections where the predisposition of the host is more significant than the virulence of the organism, where there is no specific treatment, where antibiotics are contraindicated or are of diminishing potency, where the results of artificial methods do not justify the risks, and particularly as supportive treatment in grave conditions where, even with indicated specific measures of an artificial nature, every resource of the body must be mobilized for a successful outcome.

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Summary

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Osteopathic contribution to the concept of body unity has been discussed from the aspects of the somatic, visceral, and psychic components; metabolic processes; and immunity. These five papers were prepared independently without collaboration among the authors. It will be noted that each paper embraces, to a degree, the viewpoints of the others. This fact provides an unintended testimony of the interdependence and inter-relatedness of those facets through which the organism, man, may be viewed.

Osteopathic contribution to the concept of body unity does not exist in the spoken and written word alone. The fields of practice, education, and research in osteopathic medicine are well represented by Drs. Denslow, Levitt, Northup, Rohweder, and MacBain. Their experience in these fields has provided a vast and rich background of daily awareness of body unity that can not be ignored. Every doctor, whose approach to his case problems is guided by osteopathic philosophy and osteopathic science, develops an operational sense of the unity of the body and renders service to his patients which is enriched and strengthened by that appreciation.

The day-by-day practice of osteopathic medicine based upon the attempt to evaluate the patient as a functioning unit in the light of currently available knowledge has produced therapeutic results not previously attainable. To be sure, much of the basis for this approach has been, and still is, theoretical. Theory is the application of known data to speculative assumption toward the formulation of prediction. When the prediction proves true through performance with sufficient constancy, the theory may be accepted as tenable, even though some of its component "facts" have not yet been demonstrated by acceptable laboratory methods.

Dr. Denslow has pointed clearly to the need for more knowledge of the mechanisms of the musculoskeletal (or somatic) component of the body unit. That need is made obvious by the fact that the chronic degenerative diseases, now the major front in our search for health, claim an estimated 25,000,000 victims in the United States alone. There is growing recognition that these degenerative diseases begin in childhood and early youth as "silent diseases." As Denslow states:

> . . . the basic reason for this is that important systems and organs have a certain amount of reserve or protection which permits them to at least simulate normality even in the presence of pathologic influences. . . . It is not only possible, but probable, that improved methods of analysis will show widespread influence too subtle to be detected at present.

Greater understanding of facilitation, segmental spread, low resistance areas, segmental hyperactivity of the sympathetic nervous system, et cetera, can be expected to lead to "improved methods of analysis" and earlier recognition and management of the degenerative disease processes. This is not intended to imply that the solution to all the problems of health lies solely in the somatic aspect of the body unit. However, because of the inter-relatedness of all components of the body, factors whose major effects lie in the visceral or psychic areas (as well as those primarily in the somatic area) may be expected to be associated with somatic evidence.

As Dr. Levitt states,

> By their innate ability of interaction to physiologic challenges, the body and its component parts act in health as a unified, smoothly functioning, and well-ordered whole human organism. By the same innate ability of interaction, the body mechanisms in disease act as an equally complete unit which, in this instance, is a disordered whole human organism. Stress, injury, or disease affecting any one part of the human body causes a unified response of the body as a whole to the disturbing factors. This total body response in health and disease is organized by the nervous and endocrine systems and is manifested in all the tissues and organs which comprise the human body.

Levitt further states,

> In considering the dynamic nature of health, the individual's personality, and the domination of man's mind over his body must be given an important place. The domination of man's mind over his body is a determinant in shaping individual and collective destiny of the human organism. This mind-body relationship is very important in view of the growing complexities of our modern living.

It would seem that Drs. Northup and Levitt had similar viewpoints for Northup has told you that,

Still, Hildreth, Dufur, and, particularly and more recently, Dunn, have discussed the importance of many of these [psychic and psychosomatic] disorders. It does not seem hard to understand that the osteopathic lesion complex may be one of the major factors which channelize emotional impulses to a given organ area and cause that particular organ to have a resulting disturbance of function because of a neurophysiologic short circuit in an emotional complex.

Northup followed his emphasis on the somatic factor in psychic disturbances with emphasis on the metabolic processes, pointing out the duty of the osteopathic physician "to be sure that metabolically these reactions are correct." He also points out that the endocrine system and the visceral system are important factors in psychic as in other physiologic disturbances.

Dr. Rohweder stresses the importance of recognizing the endocrine system when considering the body unit, since "this system, either directly or indirectly, influences every activity within the organism." He demonstrates how more recent investigations into the fields of metabolism and endocrinology support the postulates of Still and add to the recognition of the "facts" which underlie the theories inherent in the concept of body unity.

Dr. MacBain concludes his discussion with the observation that the "osteopathic contribution to the concept of body unity as it concerns immunity is one of emphasizing the complete inter-relationship of tissues and functions in the response to bacterial invasion." He points out that "What was philosophical intuition to Dr. Still has been shown to be scientifically sound and of utmost importance."

The relationship of immunity to visceral function is stressed by Levitt when he says, "Life and death together ride the human blood stream," and adds, "Thus, the insight of Dr. Still, expressed in his axiom—'The rule of the artery is supreme'—is indeed a contribution of substantial value to the concept of body unity and is indeed of importance to the consideration of the visceral component of that concept."

In his discussion of the psychic aspect, Northup made a statement which I wish to emphasize before closing. He said,

We believe that one of the major tenets of the osteopathic school of practice is the integrated approach. We have previously attributed to the osteopathic school a major contribution, namely, the science of the integrated total. This we believe to be as important in this discussion as in all others. As osteopathic physicians we can not emphasize the osteopathic lesion factor and ignore all other factors. Neither can we emphasize all other factors and ignore the factor of the osteopathic lesion complex. It is intellectual delinquency to see the truth and call it darkness. We in the osteopathic school of practice all too often forget those basic tenets of our heritage which give us justification for maintaining a separate school of practice.

This symposium has been offered in the hope that (1) it would stimulate afresh the recognition of the unity of the body, both in its ordered functioning in health and its disordered functioning in disease; (2) that it would stimulate its audience to see the old anew, to re-evaluate those theories postulated by Dr. Still and since confirmed by recently attained biologic facts; and (3) that it would encourage the profession to advance from its present successful position to even greater service to mankind through the development of a truly preventive medicine.

Let us use, for the benefit of our patients, the full armamentarium of 1952 osteopathic medicine with skill, but not with complacency. Rather, let us continue to seek a more complete knowledge of the body-mind unit in order to fashion an even more effective armamentarium toward health.

1538 Sherbrooke St., W.

POLIOMYELITIS IN THE UNITED STATES: 1952*

The incidence of poliomyelitis in 1952 has been relatively high in comparison with the 2 years immediately preceding. From the last week of March, the time of the year when the fewest number of cases occur, to September 20, 34,281 cases were reported. For the same periods of 1950 and 1951, the totals were 18,283 and 17,802, respectively. The greatest number of cases ever reported was in 1949. From the last of March through the third week of September there were 30,253 cases. In that year the entire northeast part of the country, the west north central section, and some States in the west south central and Rocky Mountain areas had a relatively high incidence. The areas from which the majority of cases have been reported this year are quite different from the 1949 epidemic areas.

Texas was the first State to show a marked increase in incidence in 1952. From the last of March to the first week of June, the number of cases reported per week was about 40. A sudden increase began early in June, and the peak of incidence was reached in about 6 weeks. Since the second week of July, the number has declined. A total of 2,818 cases was reported in Texas from the last of March to the first of September, which is a record number for that State. The largest concentration of cases has been in Houston.

Other Southern States with relatively high rates in 1952 are Louisiana, Mississippi, Oklahoma, and Kentucky. The number of cases reported since the last week in March exceeds that for the same period of 1951 in each of the four States. Incidence was relatively high in Louisiana, Mississippi, and Oklahoma in 1951.

An epidemic of poliomyelitis has occurred in Iowa this year, with the greatest concentration of cases in the western part of the State. Sioux City has been the center of this outbreak which has also involved a few adjacent counties in Nebraska.

In Ohio, Illinois, and Michigan, the number of poliomyelitis cases reported has been relatively high. Wisconsin and Minnesota have also reported sizable numbers this summer.

There has been a relatively low incidence of the disease in the States along the Atlantic seaboard and in the Rocky Mountain area, except for New Mexico. The latter area experienced a severe outbreak in the summer of 1951, centering in Colorado, Utah, and Wyoming.

Although the peak of incidence appears to have been reached in the Southern States, by August 1 the number of cases was still increasing in the North up to the last week of the month. An earlier rise and an earlier peak is expected in the southern part of the country.

At the time of writing this report, it appears that the total number for 1952 may be in excess of the total for 1949, but it will be much greater than for 1950 or 1951. The total number reported in 1949 was 42,033; in 1950, 33,303; and in 1951, 28,395.

No reports have been received that would indicate anything unusual in the type of disease in 1952. Approximately the same proportion of reported cases have shown no paralysis, and the age distribution, judged by a few preliminary summaries submitted by a few States, has not been significantly different.

*This report was prepared by the National Office of Vital Statistics, Public Health Service. Reprinted from *Public Health Reports*, October, 1952.

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THE PROFESSION, MIDYEAR

A command to the osteopathic profession to move forward was distinctly sounded by the Board of Trustees of the American Osteopathic Association at its midyear session in Chicago, from December 12 to 15. There are times when organizations rightly pause to ascertain their position, strengthen their bastions, and consolidate their gains. Such were the 1951 midyear meetings. In 1952 the note struck was distinctly one of progress. But it was the progress that grows out of consideration and deliberation. When the way ahead could be clearly seen, the Board moved with sharp positiveness. If the way was not entirely clear, studied exploration was ordered, even if such study involved weeks on the part of the committees designated for the task.

There was no indication of progress for progress' sake. And there was no evidence of the complacency that comes from contemplating too long a good past. The Board was in a mood for achievement, if its possibility could be seen to be soundly based. Meetings of the various bureaus and of the Association of Osteopathic Colleges started on December 10. The executive committee of the Auxiliary to the American Osteopathic Association was in session for 3 days.

All meetings were held in the Central Office at 212 East Ohio Street; the Board held its sessions in the spacious third floor room dedicated to that purpose; other groups were comfortably distributed throughout the building. The facilities of the building are admirably suited to these meetings, except for the lack of an elevator. When the building was erected, 4 years ago, an elevator shaft was built, but conservative financing did not permit installation of the elevator itself. At this meeting the Board provided for future reception of bids for an elevator as a first step in the long process incident to its eventual installation.

Midyear Board meetings present none of the conflicts present at organization meetings concurrent with a convention, so sessions began early and ran almost continuously, many times well into the night. Meetings of the bureaus and of the Auxiliary were marked by the same serious attention to things at hand, but the bureau agendas were confined to 2-day periods.

The Board is a truly deliberative body born out of a long history and tradition of thoroughness and marked by a judicious expression of opinion, but never a difference of will. Dr. Donald V. Hampton, the fifty-fifth president of the American Osteopathic Association, presided with a sharp incisiveness that gave precision to every session. The officers of the Association presented their semiannual reports almost immediately following the call to order.

The Executive Secretary called attention especially to the gratifying membership figures standing at 8,677, the highest on record. Nonmembers number 3,202, and the active profession totals 11,879. It is the strong membership which makes possible an organization that possesses the power to speak for an entire profession and that commands a wide recognition which gives validity to the numerous affiliated bodies of the Association so that they possess a rightful authority and prestige of their own. The security and respect which is accorded the nonmember everywhere stems directly from the strength of the Association. It is fortunate for the profession that the obligation of membership, so lightly regarded by more than 3,000 nonmembers, does not seriously handicap progress. However, nonmembership slows the rate of development and hinders a breadth of service which would be to the betterment of everyone.

The Report of the Business Manager covered the first 6 months of the 1952-53 fiscal year (ending November 30, 1952). Costs of the four publications of the Association were analyzed in their major details, as compared with incomes from various sources, especially advertising. Consideration was given to the problems that must be met during the remainder of the year.

The Treasurer presented a report of the obligations and resources of the Association, commendable in its carefully detailed explanation. Evidence of the wisdom of the House and Board in increasing the dues in 1952 was apparent in a budget which widens the service of the Association, rather than calling for a retrenchment that would have been inevitable without the increase. A careful study of this report is a revelation of the breadth of activities of organized osteopathy.

The Editor submitted recommendations leading to the implementation of his December, 1951, midyear report, projected as a long-term plan for the publications. The Business Manager and Editor joined in a recommendation for detailed study of the need of a publication on health for laymen, that need to be directly related to OSTEOPATHIC MAGAZINE.

The Bureau of Research made the third report since its organization in 1951. Its offices and permanent files were transferred in 1952 to the Central Office

and the Executive Assistant was made its Secretary. That in itself is significant of development and the important place the Bureau is coming to occupy in the profession. Its policies, challengingly outlined in detail in the Bureau's July, 1952, Report, are being progressively activated. The research program of the osteopathic profession is much more than an addition to the tremendous nonosteopathic research being done in thousands of projects throughout the country. It is research under osteopathic auspices in a special sphere of medical science, otherwise almost entirely neglected. The Bureau is fully cognizant of its responsibilities to carry out a program that meets the highest scientific standards, but that moves within the breadth of the osteopathic concept. The program is cumulative and its results will be evident to those who take the time and make the effort to study its objectives.

The Director of the Office of Education reported increasing interest and acceptance of the osteopathic profession by preprofessional colleges. Significant information will be found in the Educational Supplement in this issue of THE JOURNAL. The Association of Colleges reported that their institutions are moving forward at a high professional level, and their record is one that commands the pride and praise of osteopathic physicians everywhere. Against that must be set a challenge which the profession itself dare not ignore. Mounting operating costs entail on every hand mounting operating deficits. Operation goes forward from day to day and cannot wait. Bills must be met. The Osteopathic Progress Fund and its Director are immediately faced with a formidable problem. While plans have been fully developed to carry a supporting campaign to the public, the vital connection between the doctor and the public is not yet effective. Funds made available to O.P.F. are less by one-third than a year ago, and that deficiency constitutes an operating deficit of the colleges themselves.

Education of osteopathic physicians is the foundation-stone of the profession's permanency. Never has there been so well prepared and so promising a student body; never have the colleges operated under such thoroughly acceptable standards; the demand and need for osteopathic physicians is beyond belief. The future is here. But the people must be given an opportunity to help and it is the osteopathic physician himself who can best tell that story.

The Bureau of Hospitals, functioning under a new but hospital-experienced director, submitted a report showing steady progress and increased services to hospitals. The tremendous detail incident to the operation of this Bureau has necessitated the transfer of much of this detail to the Central Office under the direction of the Administrative Assistant, who is the secretary of the Bureau. The consistent growth of this Bureau through the years is now beginning to bear fruit, in high-standard hospitals, large and small, throughout the nation.

The Report of the Chairman of the Department of Public Relations, who has rendered long, brilliant, and distinguished service to the profession, was in itself an hour long. The record of recognition and respect accorded the profession was a matter of rightful pride to the narrator and of even greater pride to the hearers. Many of the details presented are for further consideration, study, and reference by sections of the profession immediately concerned, but it all has to do with the welfare of a school of medicine that has reached a high place in public confidence and trust.

The Department of Public Affairs is under new but effective administration. Its Bureau of Industrial and Institutional Service is being developed against a day when the osteopathic profession will have wide connection with this type of service.

The Department of Professional Affairs is under new but thoroughly experienced leadership. The ramifications of this Department extend into every phase of professional activity. Certain of its bureaus have been mentioned in some detail, but every phase of its work is significant.

What is reported here is but a small part of the wide panorama of a profession's life as unrolled before its accredited representatives.

It was pointed out in this column last year that these multifaceted affairs may seem to have little direct connection with thousands of osteopathic physicians in hamlets, in smaller cities, and in great urban centers of the nation. But the practice of medicine in any of its forms is in a state of tremendous flux. Clearly the doctor as an individual is no less important than in the past, but unmistakably the service he renders as an individual is increasingly channeled through institutions. The doctor's primary consideration was once his relation to the individuals in his community; his orientation is still and will remain for a foreseeable time to the individual, but it is an orientation which carries a community connotation.

In such a period, professional organization itself not only becomes of great significance to the individual doctor; it rapidly becomes almost indispensable to his success and the fulfillment of his purpose in the practice of osteopathic medicine. But a strong national organization, wise and experienced above the wisdom and experience of those who momentarily man it, has become the only basis of a professional security. And it is a matter of growing professional realization and pride that the osteopathic profession, from the state to the national level, has such organizations.

THE AUDRAIN COUNTY HOSPITAL CASE

The long awaited decision of the St. Louis Court of Appeals of Missouri in the Audrain County Hospital case was rendered on December 16, 1952, and held that licensed doctors of osteopathy have the legal right to practice in public hospitals constructed under the County Hospital Law of Missouri. The court so held because it concluded the law of Missouri to be that:

Osteopathic Physicians and Surgeons are practitioners of a school of medicine and are physicians and surgeons within the meaning of the Missouri statutes regulating their practice rights.

Issues involving the Osteopathic Practice Act were held not properly before the Courts since those questions had been raised by the Missouri State Medical Association, which issues in the opinion of the

court expressed no more than a disagreement on a legal question and disclosed on the part of the medical profession "no legally protectable interest at stake." The contribution of the osteopathic profession to the public health of Missouri was recognized, nonetheless, for it stated:

> . . . many of its graduates have for years unquestionably engaged in the practice of general surgery, the administration of drugs, and manipulation. At the present time nearly 21 per cent of the practicing physicians in Missouri are osteopaths, most of whom are in the rural areas where about one-third of all of the practitioners are osteopathic physicians. There are fifty-one osteopathic hospitals in the state with an estimated replacement value of $13,710,000.

The decision in full is set out on pages 286 to 288 of this issue of THE JOURNAL.

R. C. McCAUGHAN, D.O.
Executive Secretary

OSTEOPATHIC EDUCATION

The January issue of THE JOURNAL has a special significance in that it has carried for 5 years the Educational Supplement. In that brief time the report of the Office of Education of the American Osteopathic Association has become the authoritative document on the education of osteopathic physicians, and it is recognized as such by a large and increasing number of colleges offering preprofessional training. The recognition is a tribute to the authenticity of the report itself and to the high achievements of the Office of Education, and the reception is incontrovertible evidence of the wide acceptance of the osteopathic profession as an independent school of medicine with high standards of education and professional training.

By request, the Supplement has a wide circulation among colleges, secondary schools, educational organizations, and other groups that need to be informed of the educational status of this sector of the healing arts. The Supplement commands the careful attention of every osteopathic physician, many of whom are necessarily so preoccupied that they know less of the educational development of their own profession than do many from without.

Notes and Comments

Malnutrition in the underdeveloped areas of the world is a problem which justly concerns the more fortunate nations. Few of us think of America as an "overdeveloped" area or realize that "overdevelopment" can likewise create its own problems. A recent issue of the *American Journal of Public Health* calls attention, however, to that very condition obtaining in America. Editorially it states that our widespread overweight as a people can be as closely related to our future as malaria and malnutrition are to the poverty of some other lands.

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Studies have shown that 25 million Americans are overweight, a condition which is not confined to those of high income. A result of changed socio-economic conditions is that the workingman is just as apt "to dig his grave with his teeth" as the executive. Statistics from the Metropolitan Life Insurance Company show that in individuals overwreight up to 14 per cent have a death rate 22 per cent higher than those of normal weight. Overweight in the 15 to 24 per cent category increases the death rate to 44 per cent above the normal. Adding another 25 per cent of overweight brings the death rate to 75 per cent higher than the normal.

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The problem of overweight is not always a simple one but physicians will find that most of their overweight patients get in that condition by eating more than their bodies need, and by doing that year after year. The beginnings of fatal cardiovascular-renal diseases, diabetes, and diseases of the liver and gallbladder often lie in a persistently maintained obesity. It is not the occasional festive meal that is responsible for our excess poundage as a people. It is the year-around diet.

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Failure by physicians to admit overweight as a serious factor in disease production often results in meddlesome and harmful medication. Hormones are being used to treat fat boys and girls when their fatness is due to overeating, not to glandular failures. Many individuals maintain overnutrition from infancy through middle life, resulting in death considerably before they reach their normal life expectancy. And overnutrition is a euphemism for overeating.

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Physicians should better prepare themselves to handle this problem of an overprosperous people. It is not enough to say, "You must reduce." A program of weight reduction calls for a careful evaluation of the physical and emotional status of the individual, organic or functional deviations that need medical care, estimation of the degree of overweight, and the continued supervision of the patient. And it involves teaching the dieter the basic essentials of nutrition.

★ ★ ★

Overweight is rapidly becoming a serious problem in this land of overdevelopment. Responsibility for its existence rests primarily upon the physician who does not appreciate its relation to the public welfare, and the social, moral, and ethical ramifications of the problem. Too often overweight is a matter of little concern to the doctor, personally and professionally. Yet its control is preventive medicine of a high order.

Employers who wish to establish in-plant health programs and labor, professional, and other groups that have a special interest in employee health will be interested in Public Health Service Publication No. 215, entitled "Small Plant Health and Medical Programs." It is for sale by the Superintendent of Documents, Government Printing Office, Washington 25, D.C., for 50 cents a copy.

★ ★ ★

Howard A. Rusk, M.D., Director of the Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, was recently chosen from among more than 150 nominees for the Criss award of $10,000 and a gold medal for his work in "salvaging human lives." The award was recently established by one of the largest health and accident associations in the world in memory of one of its founders. The winner was chosen by a fifteen-member board of judges, which included leaders in medicine and public health and representatives of other professions. . . . Dr. Rusk is also an associate editor of the *New York Times*. His weekly column appearing in the Sunday *Times* is read world wide and is rated as an authoritative statement on medical advance as it concerns every phase of our national life.

SPECIAL ARTICLES

Symposium: Osteopathic Education—Its Necessities and Opportunities*

Introduction

H. DALE PEARSON, D.O., Chairman
Erie, Pa.

Osteopathic education includes: Preprofessional education, professional undergraduate education; intern, resident, and preceptor training; and various graduate courses in particular branches of general or special osteopathic medicine. Osteopathic education also includes establishment of, participation in, and the development of research in the total field of osteopathic medicine. It is my belief that preosteopathic students, students in osteopathic colleges, and graduates of these colleges should be educated as to the total objectives of the osteopathic profession.

If we accept the above as an outline of osteopathic education, we can consider the obligations attached to each of the component parts of the complete program. In order that all obligations be met properly, the American Osteopathic Association; its Board of Trustees; House of Delegates; various departments, bureaus, and committees; and affiliated and associated groups must continue as the directing and approving authorities. The osteopathic concept must be kept emphatically evident in all phases of osteopathic education.

The total objectives of osteopathic education are not difficult to state or understand. They are to make available to all people who desire them osteopathic physicians who are adequately trained in the diagnosis and treatment of disease, with emphasis on manipulative technics as a basic part of management. Elaboration on this statement will be made by those who follow in this panel discussion.

Preosteopathic Education. — Evaluation of students applying for enrollment must remain the responsibility of the individual osteopathic colleges. This evaluation, of course, must be based upon the approved course of study which prepares students for entrance into and indoctrination in osteopathic colleges.

Professional Undergraduate Education.—Education at the undergraduate level must meet the minimum standards presented by the Bureau of Professional Education and Colleges and the American Association of Osteopathic Colleges, and as approved by the American Osteopathic Association. It is only by so doing that we can maintain our standing with such groups as the American Council on Education, state boards of examiners, and others who have an unbiased but definite interest in the evaluation of education.

Intern, Resident, and Preceptor Training.—In the graduate educational program in hospitals the intern and resident must be assured of adequate training. Such assurance can be given only by supervision of the type presently carried out by the Board of Trustees and the House of Delegates through the Bureau of Hospitals. Preceptor training, which is more individualized, must be adequately evaluated and supervised. At present this is being done by the national Association through such agencies as the Bureau of Professional Education and Colleges and the specialty boards.

Osteopathic Graduate Training.—This field must have the approval of authorized approving agencies. Short courses in some particular field given by individuals, or groups of individuals, can be recognized and approved only after thorough investigation.

Education of the practicing osteopathic physician regarding his own profession is not yet simple. However, it is far less difficult than it was a few short years ago. The impact of the osteopathic profession on the scientific as well as the nonscientific world has made it almost difficult for the individual doctor of osteopathy to remain unaware of the value of his profession. The written and the spoken word have done much to educate the busy doctor, but his own accomplishments, coupled with those of his fellow osteopathic physicians in the care of sick people, have done more than could be done by words. Selfish

*Presented at the General Sessions of the Fifty-Sixth Annual Convention of the American Osteopathic Association, Atlantic City, N. J., July 14, 1952. The paper of W. Ballentine Henley, LL.D., Los Angeles, entitled "Undergraduate Education—Its Changing Curriculum" which was a part of this Symposium is included in the Educational Supplement to this issue of THE JOURNAL on pages 302 to 305. Dr. Henley's paper was separated from the body of the Symposium in order that it could be included in the reprints of the Supplement, which is widely distributed to preprofessional schools. The papers of Dr. Leonard and Dr. Robuck are concerned with graduate education, which is chiefly of interest to the readers of THE JOURNAL.

motivation has become secondary to consideration of people as a whole. I think it can be truthfully said that this profession will not place a selfishly motivated desire to rule and control above the welfare of those who need the services of a physician of their own choice.

The obligations placed upon osteopathic education have been discussed, but what are the opportunities? I think the opportunities and the obligations are similar in that honest discharge of the obligations makes possible the realization of the unlimited opportunities.

434 W. Tenth St.

Internships and Residencies

Opportunities and Pitfalls

J. PAUL LEONARD, D.O.
Detroit

INTRODUCTION

The opportunities and pitfalls of internships and residencies can be considered in several ways, but for this discussion I have chosen to treat these two types of postgraduate training separately.

Internships, in the osteopathic profession, are of a rotary type. They are designed to prepare the individual better for general practice, and must cover not less than 12 calendar months in an institution approved for intern training by the Board of Trustees of the American Osteopathic Association. Residency training is full-time hospital training which prepares the individual to practice one of the recognized specialties; it is conducted for a period of not less than 12 months or more than 5 years in institutions approved by the Board of Trustees for residency training.

INTERNSHIP

It might be well to state here that internships prior to the official recognition by the American Osteopathic Association in 1936 were inspected and evaluated by the American College of Osteopathic Surgeons. Prior to inspection, in the 20's, interns in osteopathic institutions were little more than flunkies in some instances, and in others were given far more responsibility for patient care than their training warranted. In setting up these early internships there was no uniform approach to a training program.

In 1936 the Board of Trustees of the American Osteopathic Association officially established the machinery for evaluating and inspecting all institutions which requested approval for intern training. All of these institutions are inspected annually and the Bureau of Hospitals prepares individual recommendations for the Board of Trustees. The Board of Trustees either grants or rejects the individual institution's request for training privileges. They also, through the Bureau of Hospitals, have established rigid standards which must be met by all institutions receiving this approval. These standards are set down in a booklet entitled "Minimum Requirements and Standards for Osteopathic Hospitals Approved for Intern Training and Residency Training."

The standards for all teaching institutions are held at an exceptionally high level at present, for unless intern training programs are organized carefully and executed efficiently, the institution is unable to meet the Minimum Standards and their training privileges are revoked.

It is interesting to note that in 1951 there were 454 internships available in 74 osteopathic institutions; it is also interesting to note that in 1951 there were 427 students graduated from the six approved colleges. The anticipated number of graduates for 1952 is approximately the same. Therefore, there are internships available for all graduates if they choose to intern.

I have already stated that all internships are conducted on a rotating basis, which means that an intern must spend approximately an equal amount of time in the three basic divisions of every general hospital, namely, osteopathic medicine, surgery, and obstetrics. These three basic divisions of service are subdivided in larger institutions into several departments but the same general rule applies regardless of the size of the institution.

It might be well to point out here that the size of the institution does not determine the type of intern training the insitution offers. I am sure that some of the best internships throughout the nation are conducted in small, well-organized institutions.

Intern training programs in nonosteopathic hospitals differ from those in osteopathic hospitals. There are three types of internship in addition to the rotating, namely, straight, mixed, and special. These internships vary from the rotating since in none of them is an equal amount of time spent in the three basic hospital divisions. With these three additional types of internship individuals desiring specialized training during the intern year can have it.

If this policy were in vogue in the osteopathic profession it would mean that not all graduates serving internships would be required to prepare themselves for general practice. This, I feel, would produce a distinct lowering of the standards now maintained. In my opinion, regardless of whether an individual goes into general or specialty practice, he should first be prepared in the general field. This preparation provides a better foundation for specialty practice. This policy of the profession providing rotating internships should rightfully be regarded as the greatest advantage of osteopathic internship.

Another advantage of our internship is that it better prepares individuals for licensure in all states. In many states an approved internship is a requirement for licensure.

On the other side of the ledger the pitfalls of an internship may be thought of as two-fold: First is the pitfall due to inefficiency, lack of appreciation, or lack of realization of the obligations and duties of the professional staff of the hospitals to the intern class. Second is the pitfall of lack of interest on the part of the intern, which can and frequently does develop as a result of staff indifference or of faulty administration of the training program. As intern programs have developed, technics have varied materially with the geographic location and, in many instances, with

the size of the institution. However, each professional staff, regardless of its size or location, should prepare and administer an educational training program which is not a repetition of material already covered in the college classroom, but is of a practical and clinical nature.

Extern training, which has been in existence in the past few years in a few osteopathic institutions, can, if not properly executed, infringe on intern training. Extern training is at present being confined to a 3 months' period, but extending it to 6 months or even a year is being considered. During externship seniors are given the opportunity to observe and to serve a sort of clerkship in the hospital. Duties should not exceed these limits and should in no way conflict with those of interns.

With the addition of extern training, the need for carefully devised educational plans has increased. Programs must be prepared and conducted at the level of the classes to which they are to be presented. Internships of the future must be more practical, more instructive, and more carefully supervised than in the past. Present-day externs returning as interns to osteopathic institutions will, because of their extern-training, be better trained for internship and will receive better training as an end result.

If each professional staff approached an intern year with a period of orientation similar to that used by the colleges, much progress would result. During the orientation period, a careful outline of material should be presented, covering such basic principles as history writing, the technic of physical examination, the systematic approach to structural evaluation, the administration and charting of manipulative therapy, the writing of daily progress notes, and the technic of summarization of a progress record. All of these principles should be outlined at the beginning of the intern year and reviewed until each intern's technic in handling each is satisfactory. Then, as the intern proceeds through the various services and departments he should have presented to him a practical summary of the scope of each and as many of its technics as will be serviceable to him as a general physician.

If presentation is made by means of clinical pathologic conferences, ward walks, attendance at autopsies (which should be followed by staff mortality reviews), and if the intern assists in the technics of the various services, his time will have been well spent.

RESIDENCY TRAINING

In recent years residency training programs have been instituted; they were officially approved by the Board of Trustees of the American Osteopathic Association in 1947, but had been conducted a few years prior to that date in an unofficial manner in a few institutions. Residency training, as already stated, is designed to prepare the individual for specialty practice and, if conducted properly, will aid in the intern training program of a hospital. However, if not properly supervised or if conducted in an institution where the volume of work is low, a residency training program can be, and in a few instances has been, an embarrassment to the intern training program. Infringement of the intern training program by the residency training program is no more acceptable than infringement by extern training.

However, residency training as well as extern training can strengthen and improve intern training. And today's interns will make better residents in the future. We can expect a higher degree of efficiency in resident training in the next few years than we have had in the past.

Residency training in osteopathic institutions, has developed to the place where there are thirty-two hospitals approved for residency training in the various specialties and a total of 176 residencies are being conducted for periods varying from 1 to 3 years.

There has been a lot of discussion recently concerning the advisability of including formal basic science training in the residency training program. At least one specialty college has insisted that this be done. However, I feel that this subject should be carefully studied for several reasons:

1. Today residents have had much better preparation in the basic sciences than they had in the past.

2. It must be borne in mind that at present residency training in many of our specialties is of shorter duration than residencies in the same specialty in the older school of medicine. We should not further shorten this period of preparation for specialty practice by insisting that long, detailed courses in the basic sciences be included. A careful analysis should be made on the individual resident's background. If sufficient basic science has not been included, it should be acquired before the individual is granted the privilege of receiving formal residency training in the preparation for specialty practice.

By the above, I do not mean to imply that residency training should not include selected basic science training where the residency warrants it. For example, I am thinking of the residency in radiology which necessitates a detailed knowledge of radiophysics, of the residency in anesthesiology which demands a thorough knowledge of pharmacology. Still another illustration is the residency in some of our surgical specialties which requires additional study in anesthesia as it pertains to this specialty. The basic science training in such instances is training over and above the basic science necessary for a general foundation and certainly should be included in a residency training program. Generally speaking, the resident should have had a basic science background and during his residency should be encouraged to apply this knowledge in a practical manner to the specialty in which he is training.

In order to make this application possible a more detailed and complete library must be available for the resident's use than is required for intern training. Further he must receive encouragement and leadership from the individual who is responsible for his training.

Residency training should not be confused with the old house physician or second year internship of years ago. Today's program must be conducted in a manner outlined by the Board of Trustees of the American Osteopathic Association. The requirements are included in the booklet entitled "Minimum Requirements and Standards for Osteopathic Hospitals Approved for Intern Training and Residency Training." These standards require that there be an organized professional department with qualified leadership and with sufficient volume and diversity of work within the specialty to furnish adequate experience.

The resident is not permitted to conduct work unsupervised, and a written training program must be prepared before training is started. The program must be followed throughout the training period so that at its conclusion the resident will have had well-

balanced training in his specialty. These programs are designed for the entire training period which is usually 3 years. The residency is inspected and evaluated annually by the Bureau of Hospitals of the American Osteopathic Association. A recommendation is prepared regarding each specialty residency and presented to the Board of Trustees. If residency training programs are not adhered to throughout the entire residency, the institution's training privileges can and will be revoked.

Residency training programs should be so designed that they include a thorough appreciation and a working knowledge of allied specialties. To illustrate: a surgical resident should have adequate training in internal medicine to develop his diagnostic ability and also to prepare him to render preoperative and postoperative care to his patient. All residency training should include active instruction from the institution's pathologist, for the value of autopsies, mortality reviews, and tissue analysis cannot be overemphasized in preparation for specialty practice, regardless of the specialty. Residency training, if conducted properly, will develop well-trained physicians as well as specialists in one specialty.

Residency training is not the only type of postgraduate training which prepares an individual for specialty practice, but it is the only type that is conducted in osteopathic hospitals under the supervision of the institution and the Bureau of Hospitals. Preceptor training programs are a very efficient type of postgraduate training conducted under an individual hospital staff member, but they are not residencies and should not be confused with residencies. It should be clearly understood that they cannot exist in institutions where residency training programs are conducted in the same specialty.

CONCLUSION

In both intern and resident training, if we are to maintain and further the one thing which we have to offer the public, the one reason for our existence as a separate unit in the healing arts, a more conscientious effort must be exerted by hospital staffs as a whole and by each specialty department in maintaining for our interns and residents the osteopathic philosophy and concept which they were taught in college, and which we have neglected in our hospital practices in recent years. It is accepted that we should carry this osteopathic philosophy with us into private practice whether general or specialized. Further, this philosophy must be an active part of hospital procedure integrated into the training programs of each professional department of every hospital. Interns and residents in hospitals have not been given full appreciation of manipulative technics and philosophies which are a part of office practice. They must be taught osteopathic manipulative technics and philosophies if they are expected to avail themselves of them in either general or specialized practice.

In conclusion, the opportunities of osteopathic internships and residencies are many. The pitfalls can be minimized with a well-developed professional staff which appreciates its obligations to the training program, and with educational programs designed for each of the three types of training offered. The value of the training can be enhanced by continuing the policy of increased clinical pathologic conferences and the trend toward more autopsies, mortality reviews, and ward walks. If these basic points are studied and improved, the training programs in osteopathic hospitals will raise the standards of osteopathic hospitalization of the future.

2673 West Grand Blvd.

Our Expanding Graduate Program

S. V. ROBUCK, D.O., Sc.D. (Hon.), F.A.C.O.I. (Hon.)
Chicago

In anticipation of discussing the subject of graduate and postgraduate programs in the colleges and elsewhere in the osteopathic profession, I communicated with the heads of the six colleges, the American College of Osteopathic Surgeons, the Academy of Applied Osteopathy, and other organized groups interested in supplying and/or promoting courses of training at the graduate or postgraduate level.

There is some difference of concept as to what constitutes graduate and postgraduate education. In order to orient my discussion and to define its scope, I shall quote from Webster's New International Dictionary, Second Edition Unabridged, 1950, as follows: "graduate . . . now holding . . . a (college or university) degree; being a graduate; as a graduate student . . . of, pert. to, or designed for, graduates; postgraduate; as, a graduate school." . . . "postgraduate . . pertaining to, or designating graduates, or studies pursued after graduation." Thus it is seen that the two terms may appropriately be used to apply to the same type of educational training, and it can readily be seen that the definitions allow a consideration of practically all studies pursued after completion of the undergraduate prescribed course of study leading to a degree of Doctor of Osteopathy or other certification as graduate or postgraduate.

Roscoe L. Pullen,[1] Professor of Graduate Medicine, Director of the Division of Graduate Medicine, and Vice Dean of the Tulane University of Louisiana School of Medicine, writes as follows in defining graduate and postgraduate education:

In the discussion to follow, the term "graduate medical education" is used in its general sense to denote any form of educational endeavor following the attainment of the degree of Doctor of Medicine. It is recognized that "graduate" education, strictly speaking, refers to instruction leading to an advanced University degree which, by its nature, connotes a measure of intellectual achievement and promise; for the most part, "graduate" medical education would imply courses of instruction leading to such degrees as Master of Science, Master of Medical Science, Doctor of Philosophy, and the like, such instruction, by and large, following the successful completion of courses leading to the degree of Doctor of Medicine. In contradistinction, "postgraduate" medical education embraces all forms of instruction following the attainment of the degree of Doctor of Medicine which serve to prepare the physician for a higher or more successful level of medical practice; fulfillment of the criteria for an advanced degree is of secondary, or no, importance. The terms are defined loosely and are often used interchangeably unless qualification is requested.

Educators tend to deviate somewhat from the definitions of Webster. They incline toward a working classification about as follows:

Graduate education applies to a predetermined schedule of subjects and subject matter with a view to special accreditation such as a special certificate for having finished a prescribed course of training at the graduate level or to receive an appropriate degree.

Postgraduate work has to do with specially set up subjects, chiefly for the purpose of increasing knowledge in these subjects and to increase technical ability. The matter of degrees does not enter into the consideration. There may be certification of having satisfactorily finished a course of instruction and training.

There is yet a third class of educational work given following undergraduate training, frequently referred to as review courses. Usually they are given in a few days to a few weeks, and commonly they cover a great variety of subjects. No degree is given for this work though credit certification is sometimes practiced.

These courses are sometimes given to prepare graduates, most of whom have been practicing several years, for special examinations as before state licensing boards. Some material being currently taught in undergraduate training is included. It differs in that the subjects are covered in less time and new material is presented. Since most doctors taking these courses will have graduated at least 5 years before, repetition would be considered good pedagogy, especially when presentation is streamlined and brought up to date with advanced material and more seasoned application. Courses incorporating these elements are considered by qualified educators to be valid educational work and applicable toward accreditation. This type of education may well be considered postgraduate.

Fractional education is accepted as valid technic in presenting a postgraduate course. "Fractional education" refers to a program set up with subject matter to be given on a scheduled curriculum, the goal being to cover predetermined material in a more or less given time. It may be given a few hours per week or during short resident training periods of a week or more, with part of the scheduled work being covered at each period. Between sessions the graduate practices his professional art and does scheduled reading. The application of this principle and technic in postgraduate training is considered excellent, for between periods of formal tutoring the individual applies what he has learned and furthers his studies as his experience enriches his knowledge.

Refresher courses may well be those of a few hours to a few days during which related or unrelated subject matter is presented in a streamlined manner. Convention programs and annual homecoming courses are good examples. Forty years ago we had but few courses that would rate as refresher courses. There were a few doctors who returned to school for additional education but mostly to teach and learn while teaching. No formal study schedule existed.

Lest the feeling of shortcomings on the part of the osteopathic profession becomes embarrassing, let us see what the older school of medicine has done. According to Pullen:[1]

> During the past twenty years, graduate medical education has assumed its rightful place in the activities of many schools of medicine; for various reasons, it has not yet atttained a status comparable to that of undergraduate medical education.

Pullen's[1] article is prefaced by the following statement:

> Although graduate medical education has become one of the most important aspects of the medical teaching program, there has been no concerted attempt to construct unified curricula for graduate students. To a large extent, this phase of the training of students depends on the requirements established by the specialty boards. This is education to conform to a minimum standard in a narrow field and must be intelligently surveyed with an eye to improvement.

Forty, or even 20, years ago, osteopathic hospitals were few and so were internships. We had no machinery for setting up rules regulating internships. There were no residencies. There were very few who were seriously enough interested in organized graduate or postgraduate education to do anything about it. The outstanding person in that category was Dr. C. C. Reid of Denver, who presented refresher courses annually beginning about 1914 and in 1919 incorporated the Denver Polyclinic, which was approved by the American Osteopathic Association for graduate training for the years 1938 and 1939.

Other individuals presented courses from time to time, mostly short ones in specialty fields, chiefly otorhinolaryngology and surgery. Later came short courses in proctology. Dr. Frank Stanton's Dover Street Clinic offered one of the early courses lasting a month.

A milepost in our pioneering was reached with the organization of courses in diagnosis in the field of internal medicine about 1920 by Dr. Robert H. Nichols. These courses were held in Boston, utilizing clinics in and near the city. Dr. Nichols had full cooperation of outstanding institutions, the heads of staffs and staff members, as well as members of prominent medical faculties, including the late Richard C. Cabot. Clinics were prearranged for Dr. Nichols' classes at such institutions as Tewksbury State Hospital, Boston State Hospital, and Rutland State Sanatorium, with special visitations to the clinics of Peter Bent Brigham and Massachusetts General Hospitals, Joslin's diabetic clinic, and several other institutions of similar standing.

These courses covered 4 weeks of concentrated work, well balanced between didactic and clinical instruction. They reached their zenith in 1922 and 1923 but continued for some years afterward.

These courses had a very definite influence upon the educational program of the osteopathic profession, producing better education and practice, although few in the profession have known of them and their outstanding contributions. The convictions of Dr. Nichols were unwavering and counter to the ideas concerning osteopathic education prevalent at that time and in the ensuing controversy, valuable clinical facilities were lost. Today, those holding ideas counter to those held by Dr. Nichols are in the minority and their voices are rarely heard.

Thus we pioneered and we now consider that we have attained some maturity and stature in the field of graduate education. Present day graduate and postgraduate osteopathic education will be discussed.

Certainly we can consider an internship to be graduate training until such a time as it is required as a part of undergraduate work, with the degree granted following the internship. No osteopathic college re-

quires internship as a requisite for graduation although six American and four Canadian medical colleges do.

Resident training is unquestionably a good example of graduate training. The same correctly applies to preceptorships and to fellowships.

Most schools give graduate work at stated hours to doctors living within the environs of the respective college towns and/or to residents. Some of these courses are presented in an organized manner so that special credits accrue toward certification of importance.

Special courses in basic science subjects, technical training, clinical training, and clinical didactic work requisite for certification in most of the specialties are organized and available. Within the past year science instruction requisite for certification in specialty fields has been made available in most of our colleges. Others are planning to make such courses available to their residents and to doctors within commuting distance of the colleges. These courses are designed for doctors who have had instruction in basic science within recent years and are probably too advanced for those who have had no such training in the past 10 years or more.

It would be a healthy thing for our profession if there developed demand for more inclusive fundamental instruction in the basic sciences, especially designed for those who graduated more than 10 years ago.

The College of Osteopathic Physicians and Surgeons has administration, faculty, and physical plant set up for graduate and postgraduate education. Here one can receive qualified graduate education leading to advanced degrees or training in any of the specialties. Requisite instruction in graduate basic sciences, clinical work, and dog surgery are available, and courses are given the year around, day and night.

The Philadelphia College of Osteopathy has established a program of graduate courses in osteopathic medicine and basic sciences. The recently acquired hospital will undoubtedly make clinical training on the graduate level an outstanding part of the educational program of this college. Adequate qualified personnel is available.

The Kansas City College of Osteopathy and Surgery has set up courses in specific fields that run concurrently, each for a week. These are well designed to improve clinical efficiency. Other courses are available and still others are in the making.

Des Moines Still College of Osteopathy and Surgery courses follow a similar pattern though they have continuity, and valuable credits may be accrued.

Courses to qualify doctors for advanced standing before licensing bodies have been given by the Des Moines Still College of Osteopathy and Surgery, the College of Osteopathic Physicians and Surgeons, the Chicago College of Osteopathy, and the Philadelphia College of Osteopathy. These courses have been so timed that those living within commuting distances could take the work and maintain some practice. These courses come under the classification of fractional education.

To detail all that each osteopathic college is doing to provide advance training would be too time consuming. Let us bear in mind, however, that certain things have happened in the last 10 years that have changed the teaching picture in the graduate field very radically. They are:

Full time basic science instructors have become well oriented in our teaching programs.

Men in the specialty fields have increased in number, maturity, and ability.

Resident and intern training has increased in ratio with the expansion of hospital facilities.

Maturing of the specializing programs has brought about crystallization of more adequate graduate courses in basic science subjects, specific technics, and clinical training.

At the present time our greatest need is awareness on the part of osteopathic physicians—particularly those in general practice—of the desirability and value of regularly taking time to bring themselves up to date on modern practice. It is impossible to maintain a busy practice and do adequate studying at the same time.

Osler[2] stated:

> The training of the medical school gives a man his direction, points him the way, and furnishes him with a chart, fairly incomplete, for the voyage, but nothing more.

He went on to say:

> The third essential for the practitioner as a student is the quinquennial brain-dusting and this will seem to him the hardest task to carry out. Every fifth year, back to the hospital, back to the laboratory, for renovation, rehabilitation, rejuvenation, reintegration, resuscitation, etc. . . . it is a speculation in the only gold mine in which the physician should invest—Grey Cortex!

It has long been the practice among doctors of the old school of medicine to leave their practices and spend years abroad in clinics. There is need for osteopathic physicians to become more cosmopolitan in learning and for osteopathic colleges to become more cosmopolitan in teaching; thus will be avoided inbreeding which saps the virility of individuals and colleges. State reregistration laws requiring refresher courses are valuable to the public but are not a substitute for the realization on the part of the profession of need for expansion of knowledge at the graduate and postgraduate level.

This need is far more urgent at the present time than in Osler's. Relatively, medicine was moving slowly then. Now its expansion and acceleration seem to know no bounds. The doctor is legally and morally obligated to keep abreast of medicine as practiced in his community and as known to the medical world. "Quinquennial brain-dusting" and investing in the gold mine, "grey cortex," seem to be the thing to do now that the colleges have done their part in making qualified work available. The colleges have rapidly become postgraduate minded. The question now is, will the profession respond to this lead?

25 East Washington St.

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Department of Professional Affairs

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COMMITTEE ON SPECIAL MEMBERSHIP EFFORT

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"BY THEIR FRUITS YE SHALL KNOW THEM"

Sometimes it seems difficult to evaluate those things in which we have the choice of participating or not participating. The difficulty arises when we forget that a perfect yardstick has been supplied to us in Matthew VII: "By their fruits ye shall know them."

Every osteopathic physician has the choice of being a part of the development of his profession, and hence of its greater service to mankind, through membership in his professional organization. The alternative is nonmembership, which results in the necessity of functioning within the limitation of a single individual.

The membership statistics of the American Osteopathic Association as of December 1, 1952, showed 8,495 members. The combined interest and effort of its membership has borne many valuable fruits, notable among which are:

Preservation, growth, and development of a highly respected educational system, both undergraduate and graduate

Stimulation and implementation of a large-scale research program

Development and maintenance of standards of hospital service to assure the best care of the sick and injured

Widened and more enlightened public knowledge of the osteopathic school of medicine

Constantly and rapidly growing recognition and appreciation of the value of the osteopathic school of medicine at the national level

Increased availability of osteopathic health care to the peoples of the various states.

Every osteopathic physician enjoys the opportunity of serving his community both as a physician and as a citizen. Those of us who are members of our major professional association enjoy the much greater opportunity of being a part of a much wider and more effective service through our combined efforts.

Since the scope of this greater effort is dependent, to a large degree, upon the number who contribute toward it, let us keep the opportunity of membership constantly before those who have not yet availed themselves of it. Their participation can be expected to increase the productivity of our mutual efforts.

ALLAN A. EGGLESTON, D.O.

MEMBERSHIP REPORT AS OF DECEMBER 1, 1952

Membership Count, November 1, 1952		8,458
Applications received in November, 1952	22	
Graduates licensed in November, 1952	30	52
Deaths in November, 1952	5	
Resignations, November, 1952	10	15
Gain in November, 1952		37
Membership Count, December 1, 1952		8,495

HONOR ROLL

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THE AUDRAIN COUNTY HOSPITAL CASE

IN THE ST. LOUIS COURT OF APPEALS
SEPTEMBER SESSION, 1952

C. R. STRIBLING, *et al.*, (PLAINTIFFS) APPELLANTS,)
vs.) No. 28,510
J. FRANK JOLLEY, *et al.*, (DEFENDANTS) APPELLANTS,)
H. I. NESHEIM, *et al.*, (DEFENDANTS) RESPONDENTS.)

Appeal from Circuit Court
Audrain County.
Hon. Sam C. Blair, Special Judge

OPINION FILED
December 16, 1952

This is an action for a declaratory judgment, brought by the trustees of the Audrain County Hospital. They adopted a rule excluding doctors of osteopathy from practicing in the hospital and they now seek to determine whether or not that rule is in violation of the laws of the State of Missouri. The State Medical Association, the Missouri Osteopathic Association, and the medical and osteopathic physicians of Audrain County were joined as defendants.

The trial court held that the rule was illegal and further found that osteopathic physicians had a right under the laws of Missouri not only to use the hospital but to administer drugs and perform operative surgery with instruments.

An appeal was taken by the trustees of the hospital and the medical physicians defendants. They appealed to the Supreme Court upon the theory that a constitutional question had been raised. It was held there that no constitutional question was properly in the case, and since that court, therefore, was without jurisdiction of the appeal, the cause was transferred to this court. Stribling v. Jolley, Mo.Sup., 245 S.W.2d 885.

It appears from the evidence that osteopathic physicians had always been permitted to practice in and to take their patients to the public hospital in Audrain County up to the year 1940, at which time the rule excluding them from practicing in the hospital was passed by the board of trustees. Because of the rule the trustees were publicly criticizd and a bond issue for increasing the hospital facilities was openly opposed. This prompted the trustees to bring the present action, to determine the legal force and effect of the statute relating to county hospitals, which is Section 205.300, R. S. Mo. 1949, V.A.M.S., and is as follows:

> "1. In the management of such public hospital no discrimination shall be made against practitioners of any school of medicine recognized by the laws of Missouri, and all such legal practitioners shall have equal privileges in treating patients in said hospital.
>
> "2. The patient shall have the absolute right to employ at his or her own expense his or her own physician, and when acting for any patient in such hospital the physician employed by such patient shall have exclusive charge of the care and treatment of such patient, and nurses therein shall as to such patient be subject to the directions of such physician; subject always to such general rules and regulations as shall be established by the board of trustees under the provisions of sections 205.160 to 205.340."

As stated, the medical physicians were joined as a class and in their answer they alleged that the osteopathic physicians were engaged in the general practice of medicine and surgery and that such practice was contrary to the law. They sought to uphold the rule excluding osteopaths and asked that the court define "the scope, limit and extent of the practice of osteopathy under the laws of Missouri." The osteopathic physicians in their answer to the petition alleged that the rule passed was in violation of the laws of Missouri, and in answer to the answer of the medical physicians they stated "that they did in 1940, and have, and will, administer antidotes, narcotics, emergency

palliatives, opiates, anesthetics, and antiseptics, and did at such times perform operations with instruments"; and they deny that such practice is in violation of any law.

It will be seen that the petition had only to do with the right of the osteopathic physicians to practice their profession in the Audrain County Hospital, but the medical physicians sought to extend the scope of the case by their answer, requesting of the court a decree defining and limiting the general practice of osteopathy.

Much of the evidence was devoted to the issue that the defendants thus sought to engraft upon the plaintiffs' cause. Such evidence revealed that the school of medicine known as osteopathy had its origin in Missouri with the founding of the American School of Osteopathy in 1894. The corporate constitution of that school in part provided:

> "The object of this Corporation is to establish a College of Osteopathy, the design of which is to improve our present system of Surgery, Obstetrics and treatment of diseases generally and place the same on a more rational and scientific basis and to impart information to the medical profession and to grant and confer such honors and degrees as are usually granted and conferred by reputable Medical Colleges, to issue diplomas in testimony of the same to all students graduating from said School under the seal of the Corporation with the signature of each member of the faculty and of the President of the College."

The college from its beginning taught as its principal precept that a perfectly adjusted body produced a plentiful supply of blood to all parts of it, and that when the body became sick or diseased it could be cured by manipulation that brought blood in sufficient quantity to the affected parts. In addition to an emphasis on anatomy and the manipulative therapy mentioned, the students were taught the use of drugs, obstetrics, and minor surgery.

The college enlarged upon its instruction as time passed and many of its graduates have for years unquestionably engaged in the practice of general surgery, the administration of drugs, and manipulation. At the present time nearly 21 per cent of the practicing physicians in Missouri are osteopaths, most of whom are in the rural areas where about one-third of all of the practitioners are osteopathic physicians. There are fifty-one osteopathic hospitals in the state with an estimated replacement value of $13,710,000.

The first statutory recognition of osteopathy was in 1897. At that time the statutes of Missouri (Mo. R.S. 1889, Art. 1, Chap. 110) provided that the practice of medicine without a license was illegal, but the Act of 1897 excluded osteopathic physicians from the statute that regulated the practice of medicine. This exclusion has been carried down without material change to Mo. R.S. 1949, Section 337.010, V.A.M.S., which provides:

> "The system, method or science of treating diseases of the human body, commonly known as osteopathy, and as taught and practiced by the American school of osteopathy of Kirksville, Missouri, is hereby declared not to be the practice of medicine and surgery within the meaning of sections 334.010 to 334.180 and not subject to the provisions of said chapter."

In 1903 (Laws of 1903, p. 248) a board of osteopathic examination was set up and the law creating it is the present Mo. R.S. 1949, Section 337.020, V.A.M.S. In the various enactments of this statute there were changes in the educational requirements of the applicants for a certificate to practice, and the act now differs from the original in that the applicants are examined upon the subject of surgery, whereas in the Act of 1903 the words "minor surgery" were used. It should be noted that this law from its first enactment to the present date requires the person holding a certificate to practice shall record it in the same manner as graduates from any other "school of medicine." Another statute in which osteopathy is touched upon is the Narcotic Drug Act. Mo. R.S. 1949, Sections 195.010 to 195.210. This covers the use and sale of narcotic drugs and provides that they may be used in osteopathic hospitals.

It seems apparent from the statutes mentioned that the Legislature, when it passed the Act of 1897 excluding the practice of osteopathy from the medical practice Act, considered osteopathy something other than the general practice of medicine and surgery as it was then known. It is also true that osteopathy was considered a thing *sui generis* when the Legislature passed the act creating the Board of Osteopathic Registration and Examination. Grainger v. Still, 187 Mo. 197, 85 S.W. 1114. Yet, as appellants concede, "It is clear that the 1937 Narcotic Act assumes that osteopaths may use drugs."

All of the foregoing stated facts leave us with a situation wherein the medical and osteopathic physicians (though differing in training and under different licensing and governing statutes) practice side by side and in many cases use all of the same methods of healing except that the osteopaths place greater reliance upon manipulation as an effective therapy.

By reason of this, a very understandable confusion exists in both schools as to whether or not there are legal limits to the practice of osteopathy beyond which its practitioners may not go. This is the third time that the aid of the courts has been sought to determine the question. Previous cases, doubtlessly intended to accomplish that result, were State v. Carlstrom, 224 Mo.App. 439, 28 S.W.2d 691, and State v. Reisman, 225 Mo.App. 637, 37 S.W.2d 675. These were both prosecutions against osteopaths in which they were charged with the illegal practice of medicine by having prescribed drugs. In both cases the defendants filed a plea in abatement in which they admitted prescribing drugs and averred that they were legally authorized to do so. In both cases the State demurred to this plea. The demurrer in effect admitted the truth of the allegations in the plea in abatement and thus left no issue for trial and the charges were dismissed without any decision by the courts on what constitutes the practice of medicine or osteopathy. For reasons that are subsequently stated, their efforts to resolve the question in the instant case must be equally fruitless, for again it is not properly before the court.

The difficulty of presenting to the courts a case wherein a line may be drawn between the two schools of medicine, if one is to be drawn, arises in part from the fact that it is basically a matter for the Legislature. As stated in the case of State v. Smith, 233 Mo. 242, l.c. 268, 135 S.W. 465: "It is unnecessary to refer further to repeated declarations of this court to the effect that the Legislature has the power to regulate, in such manner as it may think proper and wise, callings that are related to the public health." It is always better to seek the correction of a situation caused by confusing or conflicting statutes, in the Legislature, where the power to regulate lies, rather than in the courts which cannot change the statutes but only interpret and enforce them.

Wholly apart from that, however, is the fact that this suit was instituted to determine the validity of the rule excluding osteopaths from hospitals and the controversy between the two schools of medicine has been improperly injected into the case by their respective answers. It is in fact very doubtful that the medical physicians should have been joined in this suit, for Mo. R.S. 1949, Section 527.110, V.A.M.S. states:

> "When declaratory relief is sought, all persons shall be made parties who have or claim any interest which would be affected by the declaration, and no declaration shall prejudice the rights of persons not parties to the proceedings."

The rule excluding osteopaths prejudiced no rights of the medical physicians. Hence there is a serious question as to whether or not they should have been joined as defendants; but we need not pass upon this for if they were properly joined they stated no cause for relief in their answer.

It may certainly be said that the declaratory judgment act affords no greater scope of relief to the parties defendant than it does to the parties plaintiff. Our Supreme Court stated in State ex rel. Chilcutt v. Thatch, 359 Mo. 122, 221 S.W.2d 172, l.c. 176:

> "Plaintiff must have a *legally protectable interest* at stake and the question presented must be appropriate and ready for judicial decision. Borchard, Declaratory Judgments, p. 40; City of Joplin v. Jasper County, 349 Mo. 441, 161 S.W.2d 411; Odom v. Langston, 355 Mo. 115, 195 S.W.2d 466. Plaintiff's petition must present a real and substantial controversy admitting of *specific relief* through a decree of a *conclusive character*, as distinguished from a decree which is merely advisory as to the state of the law upon purely hypothetical facts, Aetna Life Ins. Co. v. Haworth, 300 U.S. 227, 57 S.Ct. 461, 81 L.Ed. 617, 108 A.L.R. 1000; Anderson, Declaratory Judgments, p. 27, 16 Am.Juris., Sec. 46."

And again it was stated in City of Camdenton v. Show-Me Power Corp., 361 Mo. 790, 237 S.W.2d 94, l.c. 96:

> "There must be a sufficiently complete state of facts presenting issues ripe for determination before a court may declare the law. 'A mere difference of opinion or disagreement or argument on a legal question affords inadequate ground for invoking the judicial power.' Appellant also cites State ex rel. Chilcutt v. Thatch, 359 Mo. 122, 221 S.W.2d 172, which holds that the petition must present a real and substantial controversy admitting of specific relief through a decree of a conclusive character."

The answer of the medical physicians stated nothing more than a disagreement with the osteopaths on a legal question, for it disclosed no "legally protectable interest at stake." Since the issues raised by it were not related to those raised by the petition, they presented nothing that may be considered in this action.

The Supreme Court, in transferring the case to us, said: "The ultimate issue to be decided is: Does the rule of February 27, 1940, excluding osteopaths from practicing in the Audrain County Hospital, contravene the provisions of the above quoted statute?" The court referred to Mo. R.S. 1949, Section 205.300, V.A.M.S., which we have set out above. For the reasons we have stated, this "ultimate issue" is the only one before us.

What did the Legislature mean when it said that no discrimination shall be made against practitioners of any school of medicine and then went on to say that the patient shall have the absolute right to employ his or her own physician? The trustees and medical defendants maintain that the rule excluding osteopaths is not in violation of this section because the trustees are allowed to adopt rules not inconsistent with the general law, and that osteopathy is not a school of medicine within the meaning of the statute.

We are cited to Hayman v. City of Galveston, 273 U.S. 414, wherein the Supreme Court of the United States disagreed with the contention of an osteopathic physician in Texas, who was asserting a constitutional right to practice in a municipal hospital. No statute such as the one we have under consideration was involved in that case. The same is true of the case of Newton v. Board of Commissioners of Weld County, Colo., 282 P. 1068, also cited. This case was decided upon the authority of Hayman v. City of Galveston, supra, and the court said, "In all substantial particulars the case in hand is like the Hayman case." We are therefore without authority in support of the contention raised.

One of the meanings of the word "school" is: "The standards, doctrines, or principles relating to a profession or occupation in a given locality; the standards or theories relating to the pathology, etiology, or treatment of human ailments." C.J.S., Vol. 78, p. 590.

Webster's New International Dictionary, Merriam's Second Edition, gives as a definition of medicine: "a. The science and art dealing with the prevention, cure, or alleviation of disease. b. In a narrower sense, that part of the science and art of restoring and preserving health which is the province of the physician as distinguished from the surgeon

and obstetrician." The meaning therefore of the words "school of medicine" does not, as contended, limit the practice in public hospitals to those who administer drugs, for, if that were true, a practitioner of any school who confined his practice to surgery could not use the institutions.

Our courts have used the phrase "school of medicine" in referring to osteopathy. Grainger v. Still, 187 Mo. 197, 85 S.W. 1114; Cazzell v. Schofield, 319 Mo. 1169, 8 S.W.2d 580; Mann v. Grim-Smith Hospital and Clinic, 347 Mo. 348, 147 S.W.2d 606. Thus it seems that the words are generally so used and understood. Nor can this common use of the words be altered by the act excluding osteopaths from the medical practice act. That was discussed in Atkinson v. School of Osteopathy, 240 Mo. 338, 144 S.W. 816, wherein the court said:

> "It is true that section 8537 provides that osteopathy is 'not to be the practice of medicine and surgery within the meaning of article 1, of this chapter, and not subject to the provisions of said article;' but the purpose so expressed is simply to segregate this particular system from those for the regulation of which article 1 was enacted."

From this it seems obvious that the Legislature, in prohibiting the boards of county hospitals from discriminating against any school of medicine, used language that included osteopathic physicians.

The matter need not, however, rest upon that alone, for it will be noted that there is a further provision in the second paragraph of the statute providing that the patient in the hospital has the absolute right to the "physician" of his choice. There is no qualification as to the school of medicine to which the physician may belong and the Legislature has considered and called doctors of osteopathy "physicians" in the act regulating their practice. Mo. R.S. 1949, Sections 337.020, 337.040 and 337.070.

The decree appealed from held that the rule adopted by the trustees was discriminatory and also held that osteopathic physicians and surgeons were practitioners of a school of medicine, within the meaning of the statute, and entitled to practice in public hospitals, subject to reasonable rules and regulations of the board of trustees. To this extent the decree was proper, but it then broadly set out what the court held to be the practice of osteopathy under the law. As we have stated at some length, the question of what an osteopath may do and the limits, if any, to his profession were not properly brought before the court and it was error for the learned trial judge to embrace a determination of those questions within the decree. By this, of course, we do not mean that we agree or disagree with the holdings of that portion of the decree, but simply that the questions were not present for the court to act upon.

It is, therefore, the recommendation of the Commissioner that the decree be affirmed in part and reversed in part, and that we affirm and adopt the first three paragraphs of the decree of the trial court and adjudge and declare the law to be as follows:

> 1. The rule adopted by the plaintiff Board of Trustees of the Audrain County Hospital dated February 27, 1940 excluding doctors of osteopathy from practicing in the Audrain County Hospital is illegal, unreasonable, discriminatory, void and of no force and effect.
>
> 2. Osteopathic physicians and surgeons are practitioners of a school of medicine and are physicians and surgeons within the meaning of the Missouri statutes regulating their practice rights.
>
> 3. Osteopathic physicians and surgeons are entitled to take their patients to the Audrain County Hospital for treatment, subject to reasonable rules and regulations promulgated by the Board of Trustees of this Hospital.

JOHN J. WOLFE
Commissioner

PER CURIAM:

The foregoing opinion of Wolfe, C., is adopted as the opinion of the court.

The judgment of the circuit court is accordingly affirmed in part and reversed in part, and the cause is remanded with directions to enter a decree in accordance with the recommendations of the Commissioner.

W. E. BENNICK, Presiding Judge, concurs.
LYON ANDERSON, Judge, concurs.
R. E. LADRIERE, Judge, concurs.

Department of Public Relations

CHESTER D. SWOPE, D.O.
Chairman
Washington, D. C.

GAMMA GLOBULIN DRIVE BY RED CROSS

The following statement was issued on December 8, 1952, by E. Roland Harriman, President of the American National Red Cross, during a press conference in the New York Chapter Headquarters, 315 Lexington Avenue.

The Red Cross has been called upon to undertake an immediate and dramatic expansion of its participation in the National Blood Program to make available all the gamma globulin possible for the prevention of paralysis from poliomyelitis. Experiments conducted over the past two years in Provo, Utah; Houston, Texas; and Sioux City, Iowa, under the auspices of the National Foundation for Infantile Paralysis and as a part of their total research program have demonstrated the effectiveness of this treatment. The Red Cross provided the gamma globulin used in these experiments without cost.

The acceptance by the Red Cross of the request of the Office of Defense Mobilization to undertake this program places a vast new responsibility upon the Red Cross and in turn upon the American people. It takes approximately one pint of blood to make an average dose of gamma globulin as used for poliomyelitis. One injection protects a child for a period of one to five weeks following exposure.

Estimates based on past experience indicate that polio may strike an epidemic proportion in at least 150 counties next summer and if so at least two million children in those counties may be exposed to the disease. Since gamma globulin is also needed for the modification of measles and in the prevention of infectious hepatitis there will of necessity be a shortage of the serum at the height of the polio season.

After a full study by the National Research Council in collaboration with agencies and groups concerned with the problem they recommended to the Office of Defense Mobilization that the maximum blood fractionation capacity of this country be put to work immediately in an effort to meet the minimal epidemic needs for poliomyelitis by the summer of 1953. The request by the Office of Defense Mobilization to the Red Cross followed. The Board of Governors of the Red Cross in view of the imperative need for this gamma globulin agreed to assume its full share carrying out the program.

This is a formidable undertaking. No large quantities of gamma globulin are available. The total processing facilities of the country at the present time are limited but the processing laboratories have been asked to work at full capacity starting now. Even so it is not anticipated that the laboratories will be able to produce the total quantity of gamma globulin needed for polio in the epidemic areas during the summer of 1953. However, it is planned to continue maximum production in preparation for 1954.

The Red Cross will not allocate or distribute the gamma globulin. Since the amount of globulin needed will far exceed the expected supply, the Office of Defense Mobilization has requested the National Research Council to consult with appropriate professional, industrial and governmental groups to determine the most feasible and equitable method of allocation and distribution in time for the next polio season.

The Red Cross will furnish its total supply of gamma globulin to the allocation agency without charge for the product in keeping with the policy now governing our distribution of blood and blood products. Over and above this new project we must continue to meet the day by day blood needs of civilian hospitals and of the Korean wounded and continue to build the Nation's plasma reserve through the 61 Blood Centers operated by the Red Cross and the Centers operated by the cooperating Blood Banks. In all the Red Cross—and private blood banks cooperating with it—must collect blood at the rate of approximately five million pints a year if this total program is to be carried out successfully.

Fortunately, we are well organized and equipped to meet this new challenge. The Red Cross has a World War II experience in which over 13 million pints of blood were collected for the Armed Forces. Since our present blood program was inaugurated in 1948 we have collected with the help of cooperating community blood banks over 7,800,000 pints of blood for civilian use and for national defense. In addition we have distributed through health offices to physicians for prevention of measles and hepatitis 3,457,435 units (2 cc vials) of gamma globulin.

While this new expansion of our program will draw heavily upon the financial and volunteer resources of the organization, I am confident that we will be able to do the job successfully if we receive the same help from the American people that we have always had in the past. We will need the help of community blood banks, of physicians and volunteer workers. We must draw heavily upon the generosity of the American people both for the blood needed in the production of gamma globulin and for the additional money to finance this new phase of the Blood Program. The gamma globulin for poliomyelitis in additional costs for equipment, personnel and processing is estimated to require approximately 7 million dollars. Originally our budgetary requirements for all other Red Cross Programs for the forthcoming year totalled 86 million dollars. Now with the additional cost of gamma globulin production we ask the American people for 93 million dollars in our March 1953 campaign.

We have responded to this emergency appeal and all our chapters have been alerted relying upon the cooperation of everyone concerned. We are confident that the people in turn will respond with blood and money so that within the near future new hope for children who are exposed to polio will be piling up in blood bottles across the Nation and the pipe line to processing facilities will be kept full.

STANDARDS FOR BLOOD CENTERS

The National Institutes of Health have amended the minimum standards applicable to licensed blood centers, to read in part as follows:

Minimum Requirements: Normal Human Plasma

Sec. 1.2 Source.—Determination of the suitability of the donor shall be the responsibility of a licensed physician and shall be done by him or under his supervision with the assistance of the necessary trained attendants. . . .

Sec. 2.1 The bleeding clinic.—Drawing blood from the donor shall be the responsibility of a licensed physician and shall be done by him or under his supervision with the assistance of the necessary trained attendants. . . .

Minimum Requirements: Citrated Whole Blood (Human)

Sec. 2.1 The bleeding clinic.—Determination of the stability of the donor and drawing blood from the donor shall be the responsibility of a licensed physician and shall be done by him or under his supervision with the assistance of the necessary trained attendants. . . .

The essential change made by the amendments was to change "doctor of medicine" wherever those words occurred to "licensed physician."

The Federal Civil Defense Administration's Technical Manual on "Blood and Blood Derivatives Program" requires: "A licensed physician should always be present in the blood bank or at the mobile unit operation when blood is being collected and when donors are resting following donation." (Procedure developed for joint use by Red Cross, Department of Defense, and FCDA, with concurrence of Laboratory of Biologics Control of the National Institutes of Health). "The term 'physicians' includes both doctors of medicine and, within the limits of individual States licensure, doctors of osteopathy." (U. S. Civil Defense Manual on Health Services and Special Weapons).

FEDERAL DEPOSIT INSURANCE CORPORATION

On November 1, 1952, the Federal Deposit Insurance Corporation put into effect a plan for hospital, surgical, and in-hospital medical benefits free to its employees, and on a voluntary payroll deduction basis to dependents of its employees. The agency contracting with FDIC for the purpose is Health Service Inc. which is owned by the Blue Cross Association. More benefits are available in hospitals (M.D. or D.O.), which are members of Blue Cross, than in non-member hospitals, (M.D. or D.O.).

FDIC is a government corporation, but it is supported by insured banks rather than by appropriations of Congress. Its employees are subject to the Civil Service Classification Act and they are Federal Civil Employees within the meaning of the U. S. Employees Compensation Act.

This is the first instance of payroll deductions of Federal employees for private health services.

Book Notices

CARDIAC THERAPY. By Harold J. Stewart, M.D., Associate Professor of Medicine, Cornell University Medical College, New York; Attending Physician, New York Hospital; Head of Division of Cardiology, Department of Medicine, New York Hospital-Cornell Medical Center. Cloth. Pp. 622, with illustrations. Price $10.00. Paul B. Hoeber, 49 E. 33rd St., New York, 1952.

The physician who keeps reasonably informed on the constant flow of new books may well ask, "Why a text limited to treatment of heart disease when there are available a number of excellent volumes on the heart?" Physicians should view their medical library as an ever-available staff on consultation. And every general practitioner should have at least one modern text on cardiology, treating every aspect of this mounting problem of medical practice. To that general text this text is a companion volume, dealing essentially with therapy; hence it is a clinical book, one which the doctor will pick up for frequent and immediate use. Back of the text is the clinical experience of a department of medicine in one of America's greatest medical centers, geared to day-by-day use of the physician. There are thousands of osteopathic physicians not so situated as to have available a skilled consultant when needed. The consistent use of a text such as this would go far toward compensating for the lack of consultation service.

THE CLINICAL USE OF FLUID AND ELECTROLYTE. By John H. Bland, M.D., Assistant Professor of Medicine, University of Vermont College of Medicine. Paper. Pp. 259, with illustrations. Price $6.50. W. B. Saunders Company, West Washington Square, Philadelphia, 1952.

Many deaths are attributed to "complications" of one disease or another. That term in many instances covers a multitude of sins. All too often, absorbed by the primary illness, the physician considers signs and symptoms of a secondary medical problem to be manifestations of the initial disturbance. He does not stop, because he is uninformed, to suspect abnormalities in fluid and electrolyte balance. This is especially pertinent in the care of older patients whose advanced age renders their compensatory mechanisms inefficient.

Recently several texts have been published which present the concepts of fluid and electrolyte balance accurately, but in a complicated and technical form that is not easily related to general medical care. This author is as accurate as his predecessors but, in addition, he has devoted more energy to simplifying the explanations and relating them to the experiences of a general practice. This is not, however, a text for amateurs. The material is difficult and necessitates close and careful study. The work of Gamble and that of Marriott are referred to in many instances for more complete coverage. This phase of medicine should be thoroughly understood by all physicians, and hours spent in study of this text would be well spent.

ADVANCES IN MEDICINE AND SURGERY. From the Graduate School of Medicine of the University of Pennsylvania. Cloth. Pp. 441, with illustrations. Price $8.00. W. B. Saunders Company, West Washington Square, Philadelphia 5, 1952.

This book represents publication of a course planned as a series of symposia for "educational renewal for alumni" at the Graduate School of Medicine of the University of Pennsylvania. Ten topics of medical and surgical importance are discussed with emphasis upon related developments in the last 5 years.

A detailed section about adrenal cortical hormones includes chapters on the biochemistry, physiology, and pathologic aspects of these hormones; diseases caused by chronic hyperfunction of the adrenal cortex; and general and particular features of cortisone and ACTH therapyy. Another section covers well the role of potassium in body functions. The more recent discoveries and developments in treatment of hypertension are outlined in a third section.

Though only three of the ten topics included in this edition have been mentioned, it is clear that the physician who has neglected postgraduate refresher courses or who has not availed himself of current periodical literature will find a superior compilation of the high points of both here.

CORRELATIVE CARDIOLOGY. By Carl F. Shaffer, M.D., F.A.C.P., Associate Professor of Clinical Medicine, Baylor University College of Medicine, and Don W. Chapman, M.D., F.A.C.P., Associate Professor of Medicine, Baylor University College of Medicine. Cloth. Pp. 525, with illustrations. Price $9.50. W. B. Saunders Company, West Washington Square, Philadelphia 6, 1952.

This manual, used wisely by the student of cardiology, could be of inestimable value. Entirely in outline form it presents the various phases of anatomy, physiology, pathology, and abnormal or pathologic physiology that pertain to the diagnosis of heart disease and assumes that the student has had the basic didactic and clinical teaching offered by any medical school. As an intern who wishes to gather his fragmentary knowledge about heart disease in an orderly form or as a resident, especially in internal medicine, he will find such a manual as this a self-teaching medium which can fix his knowledge of cardiology in a permanent form. He will need for many years only a reasonable survey of current literature to keep him "up to date." It is the modern self-teaching text at its best.

Current Medical Literature

THE MODE OF ACTION OF ANTIBIOTICS

Refinements in antibiotic therapy have developed in keeping with increased experience with and knowledge of the action of the various agents. In the *New York State Journal of Medicine* for July 1, 1952, Perrin H. Long, M.D., presents two factors which are now recognized as important in the use of antibiotics.

Assuming that the physician has made an accurate diagnosis of the infectious disease and, also, that he has prescribed the most advantageous antibiotic, the next consideration is whether or not the dosage recommended is sufficient. Several factors determine this; particularly, whether a bacteriostatic or a bactericidal effect is desired. In most instances a higher dosage is needed to kill rather than to contain micro-organisms present. Further, the location and consequent blood supply of the area infected must be determined; successful treatment of infection in an area with poor blood supply requires a higher concentration of the antibiotic in the blood stream than for the same infection in an area of rich blood supply.

The second factor concerns natural and acquired resistance of the infecting agent to one or more specific antibiotics. Natural resistance is exemplified in penicillin treatment of Staphylococcus aureus infections. Staphylococci which are susceptible to penicillin are being destroyed while other strains which produce penicillinase (antagonistic to the antibacterial effects of penicillin) are developing. Similar phenomena have not been observed in regard to other antibiotics currently in use.

Acquired resistance develops slowly and so far has not become a serious problem—except when streptomycin is used. Many mutant resistant organisms have been recorded which depend upon streptomycin for survival. With evidence of widespread resistance to streptomycin it is felt that this antibiotic should be reserved for treatment of tuberculosis.

Physicians should be aware of potential resistance reactions in addition to being sure that certain antibiotic dosages are adequate to produce the desired bacteriostatic or bactericidal results.

PROCAINE AND PROCAINE AMIDE HYDROCHLORIDE IN SKELETAL PAIN

Procaine hydrochloride has proved an effective analgesic in relieving pain in and about the skeleton and its joints and their attachments, but its use has been limited by the necessity for preinjection of barbital and by adverse side effects it produces. The analgesic quality of procaine amide hydrochloride or "pronestyl," (differing from procaine hydrochloride only in having an amide instead of an ester linkage) has not been ascertained. But the fact that it is more slowly hydrolized in the body than procaine suggests that procaine amide would have more prolonged, gradual action, less likely to produce unfavorable reactions. Eugene F. Traut, M.D., presents his experience with 187 patients given procaine amide hydrochloride in the October 25, 1952, *Journal of the American Medical Association.*

A 2-week course of 3 grams daily oral doses of procaine amide hydrochloride given to a group of 61 patients suffering arthritis and 6 suffering other bone and joint diseases had little or no pain relieving effect although symptoms regressed in several patients.

Injections of various amounts of procaine amide hydrochloride were given to 118 patients. Intravenous injections had no effect when given to patients with skeletal carcinomatosis and rheumatoid arthritis. In the other patients, injections were given in or about painful areas, nerve roots, and the stellate ganglion. Periarticular and intra-articular doses provided immediate pain relief in most cases, but pain gradually recurred, necessitating repeated injections. However, progressive improvement was noted with the repeated treatment. Single or repeated or infiltrations gave prompt and lasting relief in perivertebral fibrositis, episacral lipomas, bursitis, and periarthritis. Infiltration of the stellate ganglion resulted in prompt and frequently lasting relief of pain and stiffness in the shoulder-hand syndrome, but results of brachial plexus infiltration, while prompt, were not as satisfactory, lasting 1 to 4 weeks. Procaine amide hydrochloride injections by the radicular route also provided prompt relief of radiculitis pain.

Since procaine amide is relatively ineffective as a local anesthetic, and pain of injection was severe, 1 to 2 cc. of 1 per cent procaine hydrochloride were used in many instances to anesthetize the skin prior to the procaine amide injection.

Side effects of the administration of procaine amide hydrochloride were minimal. No cardiovascular effects were noted even in patients with various types of heart disease, and blood cell counts and sedimentation rates remained normal. Several patients receiving oral doses experienced slight nausea, giddiness, and inappetence, but none of these symptoms appeared in those patients who received the drug by injection. One patient had an epileptiform attack shortly after injection but procaine amide was not believed responsible for it.

Procaine amide hydrochloride given orally proved ineffective as an analgesic but when injected into the skin produced analgesia and hyperesthesia. From this study, the drug appears preferable to procaine hydrochloride for effective infiltration pain relief in degenerative arthritis, fibrositis, pain of radicular origin, and the shoulder-hand syndrome.

USE OF ESTROGEN CREAMS

Cosmetic estrogen creams and lotions have long been available over the drug counter without prescription as it has been believed that the amount of hormone substances absorbed by inunction would not be sufficient to effect constitutional changes in the body. However, Minnie B. Goldberg, M.D., and Franklin J. Harris, M.D., present in the October 25, 1952, *Journal of the American Medical Association,* a case report in which the continuous liberal use of estrogen cream and lotion produced a pronounced degree of endometrial hyperplasia.

A 40-year-old patient who had had both ovaries removed received daily oral doses of diethylstilbestrol which relieved menopausal symptoms and created an artificial cycle upon withdrawal for a few days each month. The treatment was satisfactory for 5 years after which therapy was discontinued for several months and then resumed with ethinyl estradiol.

The patient was not seen again for 2 and ½ years when she appeared with the complaint of vaginal bleeding of over a month's duration. During the intervening time she had discontinued the regular estrogen treatment except for a brief period when a few diethylstilbestrol pills were taken and menstrual flow resulted. Another dose of 1 mg. of diethylstilbestrol had resulted in the prolonged bleeding. Curettage yielded considerable hyperplastic endometrium; hysterectomy revealed focal adenomyosis and myometrial fibrosis.

No logical explanation for the abnormal vaginal bleeding was found until it was ascertained that the patient had been using liberal quantities of cream and lotion containing estrogens on all parts of the body and had been receiving approximately the equivalent of 10,000 I.U. of estrone per week by inunction. Thus she remained free of menopausal symptoms but at the same time interfered with the artificial menstrual cycle. The patient discontinued use of the cream and resumed the oral estrogen therapy.

The cyclic use of estrogens in doses sufficient to produce regular endometrial shedding is a safe therapeutic method, but their haphazard or continuous administration, in this case, obviously led to difficulties. The authors assert that physicians should be aware of this extraneous source of estrogens and remember to ask patients about the use of hormone creams. If the creams are to be sold without prescription, labels should warn against continuous use and advise the quantities to be used.